The Builder.

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Condition of our Chief Towns.—Newcastle-upon-Tyne.

"Behold, I pray thee, the situation of this city is pleasant, as my Lord seeth, but the water is naught."

"And if the plague come again, and break out in the house, after that he hath taken away the stones, and after he hath scraped the house, and after it is plaistered;

Then the priest shall come and look and behold, if the plague be spread in the house, it is a fretting leprosy in the house: it is unclean."—Lev. xiv. 43, 44.

FEW of our chief towns can boast a more remote antiquity than "Canny Newcastle," — for here came the Roman general, Agricola, with his ant-like legions; and here came the travelled and accomplished Emperor Hadrian;— or enjoy a more world-wide reputation, as evidenced by the old adage that a Scot, a rat, and a Newcastle grindstone are to be found in every part of the universe. Newcastle has received many royal visits, both in seasons of war and in peace, being a convenient rendezvous and resting-place on the high-road to Scotland; but the pivots upon which Fame turns, as she trumpets forth to every "airt" the renown of Newcastle, are the enormous trade and traffic arising from the coal produce and various manufactures, and the daring spirits of the sailors in the collier ships—nursing for our navy the germs of the strength which upholds the glories achieved in the wooden walls of England:—

"Hail, Tyneside lads! in collier fleets
The first in might and motion,—
In sunshine days or stormy neets
The lords upon the ocean."

With the immense yield of coal in the Newcastle fields, and with the contiguity of iron stone at the Cleveland Hills, it is no wonder that, next to the Clyde, the Tyne should be the greatest iron ship-building port in the world. Palmer's gun-boats for the Baltic and Black Seas, and for China, proved the capacities of the Tyne for this branch of commerce; and Transatlantic steamships, steam-colliers, and mail-clad warrior men-of-war, have become staple branches of its manufactures. Fostered in its infancy by the mighty genius of Stephenson, the iron trade has grown, and bids fair to rival in extent and productiveness that of the coal commerce. The principal manufactories here and in the neighbourhood comprise locomotive and marine engines, steam engines, and machinery; iron foundries, and agricultural implements, and works in wrought and cast iron, steel and brass, file, shovel and spade, nail and tool making, chain cable, telegraphic and other wire rope making; and latest, but not least, Sir William Armstrong's rifled guns. The factories of the Hawthorns and Stephenson send forth locomotive engines which may be found on almost every railway in Europe, while others at this moment may be fanning wind in the desert, thus providing a novel luxury for a luxurious pasha of Egypt, or a great nabob in India. Nor are the fame and commercial success of Newcastle less noteable in other manufactures. Three-fourths of the alkali works in the kingdom are here. Lead smelting and refining, red-lead, sheet lead, pipe lead, and patent shot, are all but indigenous commodities; and glass—Newcastle crown—was in cosmopolitan use long before the window-tax was repealed, and is now no insignificant source of wealth, though glass-making has assumed a more refined character, and is wrought at the works of the Swinburnes, Cooksons, Northumberland Glass Company, Wright Brothers, Wailes, and others, into plate, sheet, flint, and stained, and into bottles and chemical retorts. Highly favoured is Newcastle and its neighbourhood, with indigenous building materials. For excellent stone, there are the Westgate, Jesmond, and many other quarries, in the heart of the town, and abundant supplies from Prudhoe, Kenton, and Gateshead Fell. At Fulwell and Aycliffe are inexhaustible supplies of lime, and in the clay districts, in the hands of Joseph Cowen, are manufactories of fire-bricks, retorts, and crucibles; by Harriman of Blaydon, and Snowball of Gateshead, of drainage, sewerage, and other pipes; and of building bricks by the great makers, Cail, Pearson, Grey, Barnes, and Waite & Howard. While Birmingham may boast of its ability to make any given object, from a needle to an anchor, Newcastle can be proud of its power to manufacture anything from a watch-glass to an Armstrong rifled cannon. With such incentives to progress and prosperity, with civilization at such a high pressure, we naturally expect from Newcastle strong evidences of enlightened advancement in every phase that appertains to the social and sanitary welfare of man.

With regard to its sanitary condition, however, some awful disclosures were made a few years ago, in these columns, before inquiry commissioners, and by local men of literary intelligence and mark, who devoted themselves to the task;—Mr. Sydney Gibson, Dr. Wm. Newton, Mr. Wm. Kell, Mr. Hylton Dyer Longstaffe, and others. With their mercantile success and gain, and eagerness still further to enrich themselves, the people of Newcastle had so utterly neglected all provision for their health, that the stalking, stealthy fiend, cholera, was enabled, insidiously, to spread its pall over the town unchecked. Cholera preyed upon Newcastle as upon one of its easiest victims. From 1839 to 1853, a period of fifteen years, an average number of 1,200 lives was annually sacrificed, entirely owing to the artificial aggravation of natural diseases caused by the want of sanitary precaution and arrangements. The mortality from cholera reached its climax in the autumn of 1853, when thirty-seven of the gentry, 316 tradesmen, and 1,174 artificers and labourers were hurried into eternity. To such an alarming extent was Newcastle panic-stricken, that the trade seemed likely to be extinguished: the receipts of the railway in the cholera months diminished to the extent of 3,000*l.*; the hotels suffered by their business falling off 25 per cent; Messrs. R. & W. Hawthorn paid in wages 200*l.* per week less for four weeks; the receipts of the linendrapers were 50 per cent. less than in the previous year,—with this significant exception, however, that, taking mourning into account, there was only a diminution of 14½ per cent.; and to this day, if anything more reminiscent of this dread period were required, we find it in the existence of the "Newcastle Cholera Orphan Society." The pestilence had scarcely wasted its nasty strength, by mowing down at one fell swoop the fearful number of 1,527 human beings in the prime of life, when the town was visited by a not less dreadful scourge—the "great calamity," by fire and explosion, recorded as one of the most destructive and most appalling of disasters.

No city in the world, scarcely Sodom or Gomorrah, could have received more potent warnings, whether by the inquiry of the superintending inspector of health, Mr. Rawlinson, in 1849, when a great number of the aggravative causes and the non-exercise by the corporation of their then powers for the suppression of them were specially adverted to;—whether by the disclosures which were made by the commissioners who sat in Newcastle in 1854, for inquiring into the causes which had led to or had aggravated the outbreak of cholera;—whether by the sympathy of royalty, when her Majesty and the royal family, returning from Balmoral on Friday, the 13th of October, 1854, at the time of the "great calamity," addressing the mayor, said to him, "This has been a most calamitous occurrence: I feel exceedingly sorry;" and the Prince Consort remarked, "That commonly some good came out of every evil;"—or whether by the force of the example set by the inhabitants of the neighbouring towns of North Shields, Morpeth, Berwick, Penrith, Lancaster, and Alnwick, who, wisely memorializing the General Board of Health, secured the services of their sanitary engineer, Mr. R. Rawlinson, and under his direction set about the task of causing their towns to be thoroughly and permanently purified with such success as is pointed to in every case with becoming pride on account of the practical results. In the case of Alnwick particularly, warned by the attack of the pestilence, the leading inhabitants at once devoted their time and attention to accomplish the designs of the engineer successfully. A local geologist of eminence, Mr. G. Tate, F.G.S., scoured the country and sought for and analyzed water in the spots where his experience taught him it would be found purest and in the largest quantities. Another resident, the clerk of the peace, a sage lawyer and antiquary, put himself at the head of a chosen band of fellow-townsmen, as a local board of health, and with the co-operating aid of Mr. J. W. Carr and Mr. J. A. Wilson, men learned also in the law, who successively took the post of clerk to the board, all opposition and difficulties were surmounted, and the town converted from a slough of despond into the fairly sanitary state which we described not long ago.

But the terrible warnings that fell upon the minds of the public with all the force of blows from sledge-hammers appear, in the eyes of Newcastle magnates, as light as snow-wreaths, which a gleam of sunshine would dissolve: the examples of neighbouring towns are as nought: the warnings by pestilence, fire, and governmental inquiries, suffice not: in a word, the work of reform has yet to be commenced. Revolting as the task of drawing public attention to these matters may be, we did not flinch from it when we had to deal with "London Shadows" and "Town Swamps;" nor shall we hesitate now. As a preliminary to the correction of abuses, there must be many painful disclosures; and with this end in view we make no further apology for the nature of the statements the exigencies of our task will compel us to make.

Entering Newcastle by a triumph of engineering skill, the high-level bridge over the Tyne, the view of the town and river would be picturesque in the extreme, if the Smoke Consuming Act were in effective operation. Of the arrangements at the central station we may speak with praise: they are complete. On this as on several occasions we have witnessed crowded trains starting north, south, east, and west, and have seen every passenger able to find his right seat in the right train without difficulty. The exterior of the station does not fittingly represent this well-ordered system. The original design of Mr. Dobson, the architect, has been abandoned, unfinished and the serviceable handsome portico is still wanting. The spacious roads, too, in front of the station as elsewhere, are not properly kept—a municipal omission to which we shall have to recur in strong terms in the course of our survey. Passing the remains of the fine old keep of the castle, we note that the modern restorations are not in strict architectural keeping with the character of the structure. We had occasion to make this same complaint some years ago, when, in a brief paper upon this interesting locality, we condemned the appearance of the battlements. The absence of archæological sentiment here ap-

parent is the more surprising, seeing that the Newcastle Society of Antiquaries, with Lord Ravensworth for president, and Drs. Bruce and Charlton, and Mr. Hylton Dyer Longstaffe, for secretaries, hold their court within the precincts of the castle. We take this opportunity to suggest that, as the growth of the antiquarian collections calls for further accommodation, and subscriptions are flowing in for the purpose of enabling the Society to build over a space adjoining the venerable pile, due care should be taken to avoid spoiling the Norman building, and that before any irremediable steps are taken, the antiquaries should not only take sweet counsel together, but competent professional advice also. For the taste and learning with which the collections are displayed and assorted in the ancient chambers we cannot say too much.

The castle is built upon a precipice, one descent from which is now effected by a narrow street built in steps, called the Castle Garth stairs. The houses are lofty, rattle-down places, with shops,—the business carried on appearing to be exclusively that of the sale of old boots, shoes, and clogs. Here there is one great fester; two hundred or more tenements are in such close contiguity, that ventilation and daylight must be almost unknown, and the even more needful matter, in a sanitary point of view—drainage, is quite unheard of! We inquired of the inhabitants the whereabouts of the nearest convenience, and after putting the question in various forms, for the ordinary terms were not even understood, we ascertained that the only accommodation was that provided by a public "netty," under the railway arches. Nor was this scandalously inadequate provision for the residents of the two hundred tenements within easy access; the steep street must be climbed, and the castle yard traversed before the filthy "netty" could be gained. This distance and consequent exposure entail upon the more decent of these poor people, the unhealthy and fever-engendering practice of retaining in their crowded and tainted rooms what should at once be got rid of till dusk or dark, when they dispose of it as best they may. Lest the term "netty" be not understood, we may explain that it consists of a large open cesspool, over which is thrown a rail, upon which the frequenters support themselves in a row in the closest proximity, without the slightest partition, much in the same style as birds at roost. We are ashamed of making the statement: more shame on those who force us to it.

Leading to the river from "the Close" are numerous passages with houses on either side, such as in London are termed alleys, and in Edinburgh wynds, but which are here known as "entries." We thread one, hap-hazard. The ground is strewed with ashes, liquid ordure, and offal, with which a colony of little children are making "dirt pies;" and in answer to our inquiries we are assured that the pathway on which we stand is the only outlet of any description for the filth from the surrounding crazy houses. We mount a flight of dangerously ricketty steps, and learn from the spectral people who come out into the sort of gallery, that seven more families exist in this unhealthy quarter, who have but one place of convenience between them all, and that "is very nigh down." On inspection, taking due precautions for our personal safety, we find that the place referred to is a wooden erection overhanging the river, of which the back and part of the sides have disappeared. There is no seat; and the only substitute for one is a stick of wood; the whole affair appearing in danger of being swept into the roaring tide below with the first gust of wind. To all intents and purposes this is a place of peril to be avoided rather than frequented; and there remains, therefore, for the whole of the inhabitants of Salt-house-entry nothing but the ground of approach to their dwellings, which is used too as a playground by their blighted infants, to serve as a place of deposit for impurities, ashes, slops, and filth of every description. Some scavengers are at work in "the close," near the entry, as we repass into it, who assure us that notwithstanding the filth strewed in every direction, the ground has already been cleansed thrice since daybreak.

Moving onwards to the quay, in close proximity to the steps to the old bridge—always a busy thoroughfare—we are apprised by its unmistakeable aroma of a public privy called "the High Crane." Like those we have described, it is seatless and filthy; and several people are jostling each other in the hideous den. Sickening at this sight, we feel grateful for the breeze upon the quay side, where, however, before we take many steps, even this is tainted with an impure odour. A cart-load or two of fish entrails lie in a heap upon the bustling and pleasant waterside-thoroughfare, just outside the fishmarket. Although the architectural appearance of this columniated market is in some respects pleasing, surely a more appropriate site could have been chosen for it than the "throngest" mercantile centre of the town adjoining the Guildhall, immediately under offices belonging to the corporation, and surrounded by merchants' offices. Nor are we the only dissatisfied critics,—hear what the fishwife sings:—

> "The cau'd east wind blaws i'wor teeth,
> With iron bars we are surrounded;
> It's better, far, to suffer death,
> Than thus to hev wor feelings wounded."

We have yet to mention a most astonishing fact—the merchants' offices of this opulent quarter are as destitute of every private accommodation as are the poor denizens of Castle Garth stairs. Only one of the numerous "chares," dark dingy alleys with no outlet, where men sit by gaslight in the daytime, absorbed in the business of money-making, has any private accommodation. The pursey merchants and their clerks must either go to the nearest public house, which is the "*cabinet d'aisance*" for the chare, or make use of the "high or low crane," the dens we have described on the quay-side. We have said only one of the chares is better provided; the exception is due to the painstaking efforts of the late Mr. Thomas Oliver, under whose superintendence the offices in it were rebuilt, with proper attention to necessary conditions, the same individual whose minutely-accurate plans and surveys of the town are to this day valuable works for reference. Several of these chares were destroyed in the "great calamity," and, after seven years of inaction on the part of the corporation, some good *has* come of the evil, in the shape of a very large and handsome block of palatial offices, built in the Italian Renaissance style, by a private speculator, Mr. Walters. Inasmuch as they are well lighted, drained, and ventilated, we wish his venture well. Before turning our back upon the quayside, which should be as clean in all its accessories as a Dutch picture, we observe that dogs are scratching out of the ash and offal heaps permitted to accrue on the public way, among merchandise, such morsels as may be palateable to them, and scattering others about, in the same way that the Roman dogs serve the *immondezzaio* in the city of the popes.

Cologne has a bad name; Cairo has even a worse reputation; but that part of Newcastle called Sandgate must be allowed to exceed either city in stenches, filth, over-crowding, and pestilential ills. Huddled together on a strip of land, 240 yards long by 140 yards, with a narrow street up the centre of it, is a mass of lofty dilapidated dwellings, evidently part of more ancient tenements, reared in Mediæval times beneath the protection of the castle walls, for the reception of leprous people or other persons whom the warders would eye with suspicion from the battlements or sallyports adjacent. They have ultimately become the refuge of the keelmen, of the immigratory Irish, who flock here in prodigious numbers in the harvesting time—in the most choleraic period of the year; of promiscuous lodgers, of whom different sets occupy the same room by day and by night, and of foreign sailors and tramps. Here, in alley after alley, and entry after entry, are tenements of so vile a description that words fail to convey a sense of their utter wretchedness. At every turn in all these passages deposits of excrescent and putrid puddles meet the eye; and nauseous effluvia pervade the air; for the 5,000 people herding in this district are unprovided with any accommodation, and men, women, and children are constrained to make use of "kits" in their tainted chambers, of which they dispose after dark in the alleys or where they may. 10,000, men, women, and children—for the population is doubled here in the height of summer, when two sets of people occupy the same rooms, alternately by day and night,—10,000 human beings are thus conditioned. So much does custom blunt perception, that the fact of one of these chares belonging to a noteworthy individual, zealous in the matter of the health of the people of Newcastle—Sir John Fife—fails to create astonishment.

In reply to our inquiry of a man lounging at the entry to "Sir John Fife's Chare," he said, there is no accommodation for the many occupants "except what you see opposite"—a public place,—"which serves 500 families." This, on examination proves to be between the milk-market and the "swirl," in the public thoroughfare; and to be capable of holding half-a-dozen men and boys on one side, and, perhaps, as many women on the other. On a Sunday morning, when the male population are at home, men and women are to be seen in crowds waiting their turns. Are there any clergymen in this neighbourhood?

Tracing St. Ann-street, which is a continuation of Sandgate, with but a slight improvement in its worst features, a decent old woman at a shop-door, confirms all we have asserted; neither she nor her neighbours in St. Ann's district have places of convenience, and all are compelled "to do the best they can." Retracing our steps past the Ford Pottery, where the road and footway are ankle deep in mud, because the spouting from the pottery buildings is allowed to discharge rain-water across the roads, and convert them into a swamp, past a ridiculously absurd mimic temple called the Royal Jubilee School, past the picturesque Keelmen's Hospital, we find our way to a district called Pandon, which shares with Sandgate its unenviable notoriety. But we may not shock our readers with further details on this head.

The air gives evidence of the proximity of cows, and close to this spot we find round three sides of a large square, closely encompassed by dwellings, a series of cow-byres; on the fourth side, or that which is formed by the public thoroughfare, is a huge cow-dung midden, the foul drainage from which is oozing in a stream through the walls, and flowing in an open gutter, adown the steep street. This disgusting state of things by no means precludes a wealthy Newcastle magnate from occupying a mansion in the midst thereof, nor has it induced him to promote the covering up of the "common shore," or open gutter, into which, be it remembered, his poor neighbours are constrained to discharge the contents of their water-pots, and which flows almost before his door. Cowgate itself is composed of houses so dark, so dismal, so dilapidated, so like an old and patched garment worn to shreds, that we can but marvel at their holding together. Nevertheless, at the junction of Cowgate and Broad Chare resides another wealthy burgess, a worthy member, too, of the corporation, Mr. Matthew Plummer.

The day is waning as we stand before the Hospital of the Holy Jesus, incorporated in 1681, "for the support of poor impotent people, being freemen, or freemen's widows, or their sons and daughters that have been married, for ever." We are surprised to see many of the rooms shut up and vacant, although the building is in good preservation, cheery, sunny, and picturesque, with a pleasant cloister, made bright with its contiguity to an open square or garden, having a fountain in the centre. The riddle is soon solved. The in-

mates receive such handsome annuities, that, under the plea of their age and incapacity to take care of themselves, their friends find it convenient to lodge them elsewhere: this non-residence being permitted, their disused chambers are left as hunting-grounds for the rats and mice. A strange departure from the original intention of the founders.

With the bright sunshine of another morning we resume our investigations. The main street of Newcastle retains its ancient name,—Pilgrim-street. Standing in the arcade, at the head of Mosley-street, we are in close proximity to the recent improvements in street architecture. At the junction of Grey-street and Dean-street we are in the presence of the first grand effort of the speculative genius of Mr. Grainger, and which is justly pointed to by the Newcastle people as representing the Londoners' Regent-street. Dean-street leads by a most precipitous descent into the "side" and main road to the quay. Here common sense dictates as bold an experiment for the remedy of this inconvenience as any that Mr. Grainger has successfully carried out. Several plans have been suggested, the most practicable of which appears to be that of Mr. Richard Cail, for tunnelling through the Castle-hill, as this would form the most direct approach to the new bridge which, sooner or later, will have to be thrown across the Tyne. When the piers of the high-level bridge were laid down it was not expected that they would have the effect of silting up the piers and arches of the old bridge; but this has proved to be the case, and the old, inadequate structure is doomed. It is not clear, however, why a carriage-way cannot be made through the arches of the piers of the high-level bridge, nor why roadways for foot passengers could not rest upon the already projecting foundations of the piers on each side of them; so that, instead of building a new, costly bridge, that of Stephenson might serve the triple purpose of the railway on the highest level, and the carriage and foot way on a level with the new street near the castle, as existing, and the new carriage and foot ways on the low level from the Newcastle to the Gateshead quays.

As we move through the more aristocratic regions of the town we find scandalous disregard of the public health is not confined to the poorer quarters. A handsome new terrace, called Lovaine-place, the east end of Saville-row, Ellison-place, and George-street, the latter being the residences of the old *régime*,—all overlook a remarkable place called Pandon Dene. This is an immense and steep ravine, in whose valley flows a burn or stream. A few years since, when the dene was covered with blossoming trees, and the clear waters of the burn sparkled in the sunshine, this was a delightful promenade; but now the light summer-houses dotted over the banks have been converted into crowded tenements; the limpid stream is changed into a foul, common, open sewer; and, in fulfilment of some wild scheme for obtaining a level building site, this immense ravine has become a prodigious deposit of all kinds of fœtid slush, of street scrapings, and "rubbish shot here." We envy not the aristocratic denizens of Ellison or Lovaine places the perfumed breezes which must come fluttering into their handsome chambers whenever a window is opened.

We next turn our steps westward, by Barras Bridge, where fresh northern breezes from the town moor float into the neighbouring houses; along old-fashioned Percy-street, in which are the hay-market and Dr. Bruce's excellent school; past some new baths and wash-houses at the corner of Galligate, built from the designs of Mr. T. Oliver, which we are told are so successful as to pay a large rate of interest, and to require extension; down Newgate-street, where we note a new street in course of formation into Westgate-street; past the very handsome Roman Catholic church and bishop's residence; into Marlborough-street, one of the great arteries to the west. Here we are distressed with the disregard paid to modern teaching in sanitary science, in the erection of a new cattle-market in close contiguity to the new wing of the great infirmary. The cattle-market appears to possess all the modern requisites; but the taste displayed in the punch-and-judy box to contain the market-bell is not striking. We cannot, however, speak too seriously on the grave question of the objectionable choice of site. Erasmus Wilson, the great pathologist, writes, "A cattle-market proximate to an infirmary for sick persons does certainly seem an outrage upon every sanitary idea; not only on account of the malaria arising from such market, but also on account of the noise and brutal violence which are the common attributes of a cattle-market." Another authority on sanitary regulations, Mr. Rawlinson, writes, "A cattle-market next an infirmary must be an abomination. Miss Nightingale holds that the sick require cleanliness, quiet, and fresh air."

We must now recur to a neglect on the part of the corporation—the state of the roads. In the thoroughfare in front of the cattle-market, where 30,000 people pass and repass daily, the pavement is only 6 feet wide, and on to this door-steps and scrapers protrude. It is formed of miserable free-stone, which is worn away in some places, and has disappeared altogether in others, so that the rain stands in puddles for hours after all traces of a shower should have passed away. At the crossings of Wharncliffe, Maple, and the other streets which intersect the Scotswood-road, there are dangerous cuttings worn by the rush of day water down these streets, making the thoroughfare, which is not paved at the crossings, very conducive to the attainment of sprained ankles and broken legs. The whole pavement of Scotswood-road is in a most disreputable condition, — the freestone spotted with puddles; the asphalte worse with pools; and the so-called macadam nothing more than mud. The whole of the district is laid out into long streets or terraces, about a mile long, up a steep eminence, northwards from the Tyne, and is intersected by the main arteries, Western Turnpike, Elswick-lane, and Scotswood-road. It is a most favourable natural site for building purposes. A good use has been made of it in the erection of neat and even handsome houses for the suburban residences of the wealthier classes. But the roads are so bad that it is impossible for carriages to approach many of them. Before one of these terraces there are mud-banks so high that no vehicle attempts a passage save the coal-carts, and three horses have to be used to drag a load that ought to be amenable to one; others are unpassable; even hearses cannot be drawn up to the door to receive the dead. We saw the "ladies' doctor" obliged to get out of his carriage at a great distance from his patients' houses, to which he had to walk through the rain, to enter the sick room cold and wet. A shameful abomination in connection with this part of the town has yet to be noticed. The drainage from a row of houses is allowed to accumulate into a huge fœtid pond in the hollow of "Lawton's-field," and there to remain poisoning the atmosphere of the whole neighbourhood.

Thus, from personal observation and inquiry, we have ascertained that Newcastle is in a perilous condition as regards its sanitary arrangements: that there is no regular system of sewerage; no authorized plan of what existing drainage there is; and that the outlets of such drains as do exist (25 in number) are above low-water mark. Ash places and middens exist under rooms, and rooms under ash middens. Of the water supply we have said but little. It is principally obtained from the Whittle Dene Water Company, or Mud Company, as it is ironically and more commonly called; and the supply being cut off in the drought of summer for twelve hours out of the twenty-four, is clearly not an adequate provision. There is no lack of funds to assist to remedy these ills. The income of the Corporation a century ago was 8,506*l.*; nearly fifty years ago (1813) it was 43,981*l.*); in 1860 it amounted to 108,594*l.* 15s. 7d. Of this latter large sum only 2,019*l.* 5s. 6d. were spent in sewerage, while 5,035*l.* were laid out in gaol enlargement, and 8,343*l.* 10s. in watching the borough.

Whilst we write we have corroborative evidence of the need of our warnings. Let Newcastle take heed of the recent incident at Liverpool, where the landing of a handful of Egyptians has endangered the town. If such seeds fall upon the ripe soil of Newcastle, the harvest will be of the same fatal kind as in the cholera seasons. Nor is this all there is to dread. An unusually hot summer would engender the most devastating disease without any foreign cause. Let, then, Newcastle be advised in time, before her valleys ring with the lamentations of the widows and the fatherless. Even considered in a monetary point of view only, sanitary reform is a profitable investment of public money. Trade suffers by no panic, and the poor-rates are diminished. The first step needful is to place the whole of the drainage in the hands of a competent engineer, so as to ensure the adoption of one well-ordered, comprehensive scheme. Superficial improvements could then follow. No town in the world is better situated for sanitary purpose. It rises up a steep slope some two or three hundred feet above the level of the river. This slope is cleft into several lateral slopes, valleys, denes, and brooks, all falling into the Tyne; and even the lowest of the streets is 8 feet above high-water level.

That Newcastle has not been behind-hand in building operations is evidenced by the numerous public buildings recently erected. The new Town Hall buildings, containing corn market, music hall, and council chambers, are in the Roman style, the external character being principally adapted for shops. The building has none of that distinctive town-hall appearance that we find in similar edifices at Leeds, Birmingham, and Liverpool. The markets are most commendable; the butcher-markets being most cleanly and complete. The Central Exchange Reading Room is a regal apartment, replete with every convenience in luxurious chairs, stands for papers, and cosy fireplaces. The institutions are numerous. The Philosophic and Natural History Society, with its recently-added handsome lecture theatre, is a delightful place for study. The Literary and Scientific Institution, in Blacket-street, has an ugly plain house exterior, but is a valuable and much-frequented institute. Of cemeteries there are no less than six, proving that Newcastle has wisely attended to *one* sanitary requirement in closing the intramural churchyards. Pillar post-boxes and drinking fountains are numerous, but not one exhibits a particle of taste in the designs.

We must not omit to mention that the Newcastle worthies are great patrons of native and metropolitan modern art, and the picture collections of the Burnets, Seithart, Bell, and Philipson are rich and tasteful. Of new churches and chapels in Newcastle their name is almost legion, as their towers and spires dotted over the town illustrate, although none of the authorities connected with the ancient churches ever accepted Major Anderson's bequest of 500*l.* to each old church for a spire, provided it was built in a given period. The principal new churches are the United Presbyterian, adjoining Earl Grey's monument, in good Early English detail, but with a stunted tower surmounted by a spire: the Trinity Presbyterian, also in Early English, with two dwarf towers and spires, and the Unitarian Chapel, of highly decorated character, with open traceried parapets and crocketted pinnacles; the Clayton memorial church, with a tower and spire of poor, wiry detail; St. Thomas's, on Barras-bridge, built in the days when Gothic was not understood, and hence looking like the fabric we see Italian image-men selling in plaster; the church in the Shieldfield, which is good; the Bath-lane chapel, with tower and spire with bold entrance, richly carved by Beale, of

Newcastle; and the excellent composition of the late Benjamin Green, St. Mary Magdalene Church and Almshouses. The Wesleyans have several excellent chapels, and we have already mentioned the splendid church of the Roman Catholics. But we have yet to mention the pride of Newcastle, the lantern church of St. Nicholas, of which the Newcastle song says,—

"Of a' the churches in our land,
Let them be e'er sae braw,
St. Nicholas of Newcastle town
Yet fairly bangs them a'."

THE ARCHITECTURAL EXHIBITION.

THE Exhibition now open in the galleries, Conduit-street (the eleventh year of the "Architectural Exhibition," *par excellence*), comprises about 386 designs, drawings, photographs of structures, and cartoons for stained glass, and 36 sets of specimens of building materials, inventions, and manufactures. Its aspect is similar to that of previous exhibitions; not yet representing what is desiderated,—the architectural works of the country during the past year; but showing to a considerable extent the change which is taking place in the practice of the younger members of the professions. It has a practical aspect,—in fact, in one respect too much so; for the drawings by which the design is set forth are in few cases better than those an architect would make for his client. We should be sorry to discourage architects from sending drawings, however slight or rough, of the works they have in progress. But we must, nevertheless, keep constantly before the eyes of those who are entering the profession the desirability, not to say necessity, of acquiring power of drawing and of becoming artists. The science of the profession, if neglected at first, may with effort be acquired later; but the artistic faculty, to be gained at all, must be cultivated early. Mr. Cockerell's prize, offered through the Institute of Architects, is directed against any possible falling off in artistic skill, and will be awarded with special reference to the goodness of the drawings.

The best drawing in the gallery (as a drawing) on the present occasion, with a long interval, is 522,—illustrations of Mr. Goldie's "new R. C. Church, Lanark, drawn for Mr. Monteith, of Carstairs, by H. W. Brewer." The principal view is an interior, looking west, very cleverly coloured; and on each side of it are three smaller drawings of other parts, the whole framed as a triptych. Another design, by the same architect, on the other hand (No. 194), "Interior View of St. Pancras Church, Ipswich," is so coarsely though cleverly drawn, as to do injustice to the design. While on this head we may point to some beautiful little drawings of the Church of St. Pierre, Touques, and other churches in Normandy, 122, exhibited by Mr. J. H. Parker.

No. 1 is a "Design for Proposed Rebuilding of a Grammar-school," G. E. Street. The same architect, besides photographs of several buildings in progress, gives a good specimen of his style and manner in 185, "All Saints' Church, Parsonage-house, and Schools, now in course of erection at Denstone, Staffordshire." No. 4 is a selection of sketches by the Class of Design of the Architectural Association,—inferior to those which the class has exhibited in previous years. 7 "Proposed Restoration of the Old Town Hall, Hereford," J. Clayton, is a proposition that was submitted in the competition last year, to remove and restore the two lower stories of the building at the wider end of the High-square. 12, "Perspective View of the New Assembly Rooms and Music Hall, Newport, Monmouthshire," now erecting from the designs of W. G. Habershon. It comprises a hexastyle Corinthian portico on a basement; the pediment displaying sculpture which is so unsatisfactory in design that we allude to it in the hope of inducing revision. 16, "Bird's Eye View of the Great Malvern Estate Company's Land," as laid out, by Mr. Joseph Clarke. This is a large drawing, showing all sorts of detached villas and other buildings in the midst of the beautiful scenery of the place. 36. "Leeds Mechanics' Institution and School of Art: First Prize," Cuthbert Brodrick. The circumstances of the competition in which this design was selected, and an account of the design itself, will be fresh in our readers' recollection. The exterior is monumental in aspect, and displays some of the ability Mr. Brodrick has shown in the Town-hall of the same town; but the upper part is very heavy, and, if to be executed in cement, will be unbearable. 42, "Entrance Porch, House erected at Knight's-hill, Norwood," James Edmeston. Mr. Edmeston is strong in porches, and with very simple elements introduces considerable variety and effect. He also exhibits "Tomb of the late Matthew Uzielli, Esq., Highgate Cemetery" (52), and other works.

Judging from the photographs, 59, "Minley Manor House, near Farnborough," recently erected by Mr. Henry Clutton, must be more curious than beautiful. The number and variety of the roofs interfere with its unity, and produce a disjointed aspect. The West Midland Hotel, now being erected at Great Malvern, from the designs of Mr. E. W. Elmslie, is set forth in 73. It is a large building in red brick, with stone dressings. The windows have segmental heads: the mouldings and tracery are Gothic. Of hotels, we have also Mr. Currey's, at London-bridge, 110, a lofty structure, to which we shall have occasion to return; the Malvern Link Hotel, by Mr. Elmslie, which we have already illustrated; and the new Victoria Hotel, Sheffield, 262, by Mr. E. Hadfield, a dwelling-house erection of the plainest type. 134, "A Professional Census, 1851 to 1861," Charles Gray, includes in one frame several houses, in Henrietta-street and Southampton-street, Covent-garden, as well as a church at Tottenham, and a design for the church of the Holy Trinity, Knightsbridge. Of these houses, which have a character of their own, and have justly obtained for Mr. Gray a position, we have often before spoken. The church last mentioned was erected, as our readers know, from a design by Messrs. R. Brandon & Eyton, who exhibit two views of it, 176, the exterior, and 182, the interior. The latter we have engraved: it appears in our present number. The style, though mainly that of the thirteenth century, must be termed eclectic. The introduction of the circular window above the triplet is less satisfactory in effect than are some other parts of the structure. Mr. Brandon also exhibits, amongst other works, a View of Datchet Church (179), with octagon tower, and picturesque general effect. 233, "Bird's-eye View of a Mediæval town," W. Burges, is rather a portrait of some St. Simeon Stylites working out his self-imposed penance on the top of a column. Beyond showing the artists' cleverness, it does little. Is any such appropriation of a column in Mediæval times known? 238, by the same, the Closets at Gayhurst, Buckinghamshire, is more practical. Mr. Burges, recurring to the old garderobe plan, has ranged his conveniences around a central shaft, for ventilation, the result being a Glastonbury-kitchen-like building. 243 marks a frameful of drawings of houses by Mr. G. Truefitt, erected, or being erected, at Muswell-hill, and on the Batson Estate, Holloway. With the same amount of originality and truthfulness that characterize some of his previous works of the kind, they have an additional spice of beauty.

Next week we shall hope to devote more space to the exhibition; and, meanwhile, may mention that amongst the other contributors will be found Mr. Ashpitel, Mr. T. D. Barry, Mr. Blomfield, Mr. J. J. Cole, Mr. Colling, Mr. Deville, Mr. E. W. Godwin, Mr. Habershon, Lady Mildred Hope, Mr. I'Anson, Mr. Horace Jones, Mr. Owen Jones, Mr. Lamb, Mr. Norton, Mr. W. Papworth, Mr. J. L. Pearson, Messrs. Walton & Robson, Mr. Whichcord, Mr. White, Mr. Drayton Wyatt, and others.

A very promising card of lectures has been issued; one that ought to induce a large subscription. Mr. Beresford Hope will commence the session on Tuesday evening, April 30th, treating of "Architecture in London;" and then we have, May 7th, "Sir C. Wren and his Times," by Mr. Robert Kerr; May 14th, "Romanesque Architecture," by Mr. Edward A. Freeman; May 21st, "The Revival of Styles," by the Rev. J. L. Petit; May 28th, "Church Architecture of the Nineteenth Century," by Mr. R. P. Pullan; and, June 4th, "On the Restoration of Ancient Buildings," by Mr. G. E. Street. A nominal subscription, 2s. 6d., admits to all these, as well as to the galleries during the day. Surely there ought to be more applicants than can be accommodated.

CHICHESTER CATHEDRAL.

THE ROYAL INSTITUTE OF BRITISH ARCHITECTS.

THE ordinary general meeting was held on Monday last, at the House, 9, Conduit-street.

The chair was occupied by Mr. Godwin, V.P.

The minutes of the last meeting having been read and confirmed, several donations to the library were announced, and thanks were voted to the donors.

The Chairman, referring to the proposed election of Herr C. R. Lepsius, of Berlin, and of M. Mariette, of Alexandria, as honorary and corresponding members, observed that their claims to the distinction about to be conferred upon them had been stated so fully at the last meeting by Professor Donaldson and others, that he would content himself with merely proposing their names for election.

The motion was carried by acclamation.

The Chairman stated that, in addition to the various premiums and prizes which had been announced, and which would be distributed, the Council had great pleasure in intimating that Sir Francis Scott had placed at their disposal a prize of ten guineas annually, for five years, for the best set of sketches for a building for civic or domestic purposes, in the style of the thirteenth, fourteenth, and first part of the fifteenth century. He referred with great pleasure to this liberal contribution; because, by having prizes of this sort, it enabled them to get rid of the objection which had been raised against the specifying of any particular style of architecture. Now that the admirers of various styles had made the Institute the representatives of their desire to forward that particular branch of art in which they themselves took the deepest interest, the number of prizes had increased, and opportunity was afforded for the illustration of architecture as a whole. In dismissing the subject for the present, he had only to state that the Council had taken care to thank Sir F. Scott in the name of the Institute for his kind liberality. Before calling on Professor Willis to read his paper on the Architectural History of Chichester Cathedral, he wished, on the part of the Council, to direct attention to certain alterations which were about to be made in one of the public buildings in the city of London. When an ancient building was threatened with demolition or injury, the Institute, if it saw reason to interfere in the interests of art, was in the habit of raising its voice, protesting against any injury being done to it, and using its influence to preserve it to posterity. In like manner the council felt that, when the Royal Exchange was threatened with an alteration which would completely destroy the inner court, they ought to make a representation to the Gresham Committee to stay their hand. On visiting the building the other day, he found that the roof of a railway shed, supremely ugly, had been placed over the first order of columns, supported by standards of iron, which completely divided the columns into two parts, and shutting off the whole of the upper portion of the court. Under these circumstances, he hoped the meeting would not think the Council open to a charge of exceeding their legitimate province, if they were to address the Gresham Committee, expressing a hope that, whatever was to be done might be done in accordance with the architecture, and so as to improve, and not destroy, the interior of a really fine building.

Mr. Digby Wyatt said that the step which the Gresham Committee was taking was really suicidal to the object in view, as the area beneath never could be ventilated if the present plan were persisted in; while, in the case of a fall of snow, the building would be so dark that the merchants could not conduct their business in it. He hoped that some respectful but earnest representation would be made to restrain the Gresham Committee from the act of barbarism which they were now perpetrating.

Professor Willis (honorary member) then proceeded to make some observations on the architectural history of Chichester Cathedral, and on the fall of the tower. The learned gentleman illustrated his lecture by reference to a number of diagrams, representing portions of Chichester and other Norman cathedrals. He commenced by stating that about eight years ago, on the occasion of the Archæological Institute meeting at Chichester, he made a minute examination of the building (which, however, he had often visited before), with the view of giving a complete history of its architecture—not from written documents, but a history in which the stones would, as it were, tell their own tale and structural history. The information collected upon that occasion was subsequently put into type, with a view to its publication in connection with two other papers, also read at the same meeting; but, owing to circumstances over which he had no control, the work had not yet seen the light; but he hoped it would shortly be published, as he understood that Mr. Mason, of Chichester, was at length in possession of the whole of the necessary MSS. When the fall of the tower and spire happened he hastened to the spot so as to put upon record the exact circumstances with reference to the accident. History had given us many records of the fall of similar towers; but we were now

enabled to judge of the nature and extent of such a disaster by reference to the late catastrophe at Chichester. It was essentially a Norman erection, and had no connection with any Saxon building previously erected upon the same site. The soil upon which the cathedral was built was in fact virgin soil, similar to that at Norwich. In the year 1114 a fire occurred which damaged the cathedral: another fire occurred in 1186, which was of great importance, and consumed the mother church and the whole town; but the then bishop rebuilt it, and the cathedral was rededicated in 1199. What was added to the Norman work on this occasion belonged to what might be termed the nascent Early English period. The date of this restoration extended from 1186 to 1204. On examining the choir he found the trace of what was called a procession path, and he fancied that there had been radiating chapels north and south, and a central chapel. There had also been an apsidal apse, of which, however, there was now no trace, as the vault or burying-place of the Dukes of Richmond was carried to a height of 7 or 8 feet above the pavement, which was completely destroyed. In mentioning this circumstance he did not, however, wish to be considered as suggesting that the Institute should remonstrate on the subject, for he felt persuaded that the matter might well be left in the hands of the zealous men of Chichester, who had come forward so nobly, and who had done so much to restore the ancient beauty of their cathedral. The Norman church was, as he before said, re-edified after the fire of 1186, and the nature of the repair presented a curious example of Mediæval restoration in a very economical manner. The bishop and chapter had, evidently, no money to spare, so they went to work to make the most of what they had. When the fire occurred it damaged the upper and lower portion of the walls, and the middle was uninjured. This was to be accounted for by the fact that the burning roof would necessarily destroy the top of the wall, while the intense heat of the interior caused by the fall of the burning timbers and other woodwork would damage the lower portion. The fire damaged the thin inner wall of the clerestory; and to repair it new mouldings, string courses, and shafts of Early English were inserted. They also put on a stone roof, so as to prevent the recurrence of a similar disaster. When they came to the east end of the church they resolved to pull down the apse, and to add two new compartments. The manner in which these works were executed showed what would have been done if the cathedral had been rebuilt from its foundations. There were apsidal chapels at the east transept, and a chapel was erected which was now used as a vestry. There was also a large square apartment with a central column, which was called the "chapter-house," because it had a central pillar. He did not, however, think it followed as a matter of course that every building found in connection with a cathedral with a pillar in the middle had been used as a chapter-house, because there were many instances (as at York, for example,) where the chapter-house had no such pillar. He believed that the building to which he referred at Chichester Cathedral was not a chapter-house, but a couple of chapels. Having referred to the exertions which had been made by the bishops and capitular bodies at Chichester, Salisbury, Wells, and other places to build and maintain their cathedrals, Professor Willis expressed his opinion that the bishops whose names were connected with certain restorations had not personally carried them out, but that they had employed professional architects, just as a professional architect would be employed to restore the tower and spire which had lately fallen. Referring to the masonry of many of our English cathedrals, especially that at Bury St. Edmunds, he called attention to the manner in which the walls had been carried up between two shells of ashlar, and the interior filled up with rubble and mortar, without proper binding. This was especially noticeable in a structure at Bury St. Edmund's, where the ashlar had been stripped off, and the impression of the stones left in the mortar behind. With regard to the history of the fall, it was necessary he should state that in 1859 the removal of the choir was determined upon, so that the nave might be thrown open for the services. The return stalls were taken away, and a transparent screen was adopted in lieu of the solid one which existed before. The removal of the stalls disclosed at the back of the wall the extreme insecurity of the piers, as they had been hacked away to allow the stalls to go under; and oak shores, which soon became rotten, were substituted for them. The building had exhibited cracks and fissures for many years before this. The piers of the tower had sunk down into the foundations, and had separated themselves from the adjacent walls by fissures, which travelled from the head of the arches downwards, until they lost all the support they formerly derived. This dislocation destroyed the principle upon which the piers stood. At Chichester Cathedral the pier arches were very small; and, when the spire collapsed, it went down very gently, resembling rather the shutting-up of a telescope than the headlong fall and smash of an immense superstructure. The piers were so weak that they must have crushed and melted away, softening the fall of the tower, which settled itself in a great mountain of ruins, reaching half way up the triforium and filling up every part of the cross. One piece of masonry alone, a part of the tower, about 9 or 10 feet high, came down nearly vertical, and settled itself amid the ruins in that shape, presented a very remarkable appearance. In examining the history of Norman cathedrals, it would be found that falls were the characteristics of several of them. The first to which he would refer was Winchester. This was one of the first Norman cathedrals built. It was constructed by Bishop Walkelin, one of the first Norman bishops who came to England. William Rufus was buried under the tower, and the monks asserted that it fell on account of the wickedness of that individual. There was a curious connection between Winchester and Ely. The latter was built by Simeon, Bishop Walkelin's brother; and singularly enough the central tower of Ely fell in 1341. It seemed, according to the ancient chronicles, that when Alan de Walsyngham, a skilful architect, was made sacrist in October, 1341, the tower was threatening to fall. The monks were consequently afraid to carry on the service in the choir. On the night before the feast of St. Etheldreda, after they had made a procession to the shrine in her honour, and they were returning back to their dormitory, a few only of the brethren had entered their beds, when suddenly, and without warning, the bell-tower fell upon the choir, with so much noise and crashing, that it appeared like an earthquake, but neither wounding nor crushing any person. Another wonder happened, attributed to a miracle rather than a natural cause; namely, that the large and beautiful canopy which covered the sepulchre of the Holy Virgin escaped even the slightest injury. The chronicle then went on to say, that at this dreadful and lamentable damage the sacrist, sorrowful and grieving exceedingly, knew not whither to turn, or how to repair so great a ruin. But at length, taking courage, and trusting to the Divine assistance, and confiding in the Virgin Mary, and the merits of St. Etheldreda, he set to work manfully. First of all he caused all the stones and timber which had fallen in the ruin to be carried out of the church (the very thing which they were now doing at Chichester). He then cleared the church of the excessive dust which covered it (at Chichester the whole interior of the building was covered with a fine white powder), and he divided the place in which the new campanile was to be built, into eight parts, measured with architectural skill, and caused it to be excavated and examined to reach solid ground, to commence the foundation upon, while eight piers were to be erected to support the building within which the choir and its stalls were to be constructed. The tower of Gloucester fell in 1160, without warning, at the time; when one of the bishops came to preach; and it fell when the bishop was about to deliver his solemn benediction to the congregation, who had all crowded for that purpose into the choir; and thus it was so ordained that no loss of life or limb occurred at that time. The tower of Worcester Cathedral, built in 1084, fell in 1175: that of Evesham fell in 1213; the two towers of Dunstable Priory, in 1221; two small towers of Worcester in 1222; and the tower of Lincoln, in 1240. The steeple and belfry of Norwich Cathedral were blown down in 1361, when the choir was destroyed; but had since been rebuilt in its present magnificent form. The west front of Hereford had also fallen within the memory of living men. Having thus enumerated the disasters which had befallen many Norman cathedrals, Professor Willis proceeded to point out what measures the architects of old had taken to prevent similar disasters. At Wells, for instance, the tower was dreadfully crushed; and, in 1321, the bishops and canons expended 1,000*l.* upon it, and were 200*l.* in debt. They arrested the destruction which threatened the edifice, by building inverted arches, carrying a sub-arch above, built between the tower piers, and strengthened with enormous buttresses. At Canterbury another expedient was adopted to prevent the tower from falling; and, although the ancient chronicle said that it was done "by the prudent forethought of the architect," there could be no doubt that what had been done was done after the mischief had occurred. At Chichester, he believed that the vibration of the spire in a high wind was quite sufficient to account for the disintegration of the entire fabric. He was persuaded that the piers had arrived at such a state of disintegration that they must have fallen, and that it was absurd to say that the removal of the screen had caused the catastrophe. The screen was only 15 feet high, and could not possibly have opposed any resistance to the tower. The fall, so to speak, was providential; and as the tower must have fallen sooner or later, it was a subject for deep gratification that it fell as it did, without entailing loss of life or limb. It did not even damage the new stalls which were erected under it. There were many cathedral towers, that of Salisbury for instance, which were in a very precarious condition. The west front of Ely, also, might be mentioned as likely to come down; and therefore it behoved architects and engineers to consider by what mechanical means such disasters might be prevented. In the present state of scientific art, he did not suppose any one could contemplate for a moment the erection of arches buttresses such as were to be seen at Wells, Mechanically speaking, they might answer the purpose for which they were intended, but they were in gross violation of all taste and architectural propriety. In the case of Chichester Cathedral, he did not think that any architect could have averted the disaster unless he was fully aware of the state of the tower. Having referred to the means taken to strengthen the tower at Hereford Cathedral with the view of showing that the architects of those early times were in reality no better than, and in fact by no means so good as, those of our day, Professor Willis concluded by observing that if any information he had been able to give might lead the profession to consider what steps should be taken to remedy the evils which threaten some of our ancient cathedrals, his purpose in drawing attention to the catastrophe at Chichester would be fully realized.

Mr. Beresford Hope, in moving a vote of thanks to Professor Willis for his erudite and eloquent lecture, observed that he wished also to give expression to the feeling of personal relief which some of the statements just made afforded him, as he had been one of the persons directly responsible for the removal of the Arundel shrine or screen. He (Mr. Hope) was a member of a small committee which had been entrusted with the carrying out of the restoration of the choir in memory of the late Dean Chandler. The removal of the Arundel shrine or organ screen was a necessary element in what they were carrying out; namely, the opening of the nave for the congregation and of the choir for the service; and this could not have been done so long as the screen was in the way. The committee were quite incapable of wantonly destroying an ancient ornament; but, when they came to consider how the choir was to be restored, it was perfectly manifest that the Arundel shrine must go. Their excellent architect, Mr. Slater, agreed with them that there was no other alternative; but, so anxious were the committee to stand well before the public in reference to the matter, that, in the absence of Mr. Slater, they resolved to take a second opinion,—the opinion of some gentleman who would not view the subject either as a matter of taste or of ritualism, but merely as a question of thrust. Mr. Yarrow was then called in; and that gentleman reported that the screen might be either taken down or left where it was, as it in no way affected the stability of the tower. Under these circumstances the screen was removed; and he thought the fact he had mentioned ought to be known as extensively as possible; as, owing to some want of information on the subject, those concerned in the work of restoration had been made the victims of unfair aspersions in certain quarters. On behalf of the committee and of Mr. Slater, he rose to declare what was the truth in reference to the matter; and he thanked Professor Willis for the manly and candid manner in which he had stated his view of the subject. The fall of the tower was a calamity which no human foresight could have prevented. The loss, however, was not irreparable; and he hoped that at no distant day the work of restoration would be commenced, and carried out to the satisfaction of all parties. In moving the thanks of the meeting to Professor Willis, he ventured to express a hope that his lecture would be published in connection with their transactions, and that it would be illustrated with the valuable diagrams which he had exhibited.

Mr. Edmund Sharpe explained the circum-

stances under which he had, eight years ago, undertaken, at the Archæological Congress at Chichester, to supply for publication a paper on the churches of Sussex; and observed that the task which he had undertaken (and which was now concluded), had engrossed far more of his time than he had at first anticipated. When he heard that Professor Willis was about to lecture that evening upon Chichester Cathedral, it occurred to him that the interest of the subject might possibly be increased if they were to regard it from a different point of view, and endeavour to throw some additional light upon the history of the church by reference to the chronological series of its mouldings. He feared, however, that it was too late that evening to invite attention to the subject; but, should the debate be adjourned to a future day, he would be glad to take part in it. He might say, however, that he hoped the cathedral would be restored as nearly as possible to the condition in which it formerly had been.

STRENGTH OF THE STONE IN THE PIERS.

Mr. Alfred Thompson, C.E., stated that he had examined the "ashlar" and "respond" from the tower piers of Chichester Cathedral. He found the stone to be a shelly limestone from the Isle of Wight, nearly a pure carbonate of lime, but of a very light, porous, and absorbent character; the specific gravity of the stone being only 1·815. He handed to the chairman a thin slab sawn from the stone, through which light passed in numberless places. He had made experiments as to its crushing weight, and found that, when laid in its bed, it crushed with a weight varying from 466 lbs. to 566 lbs. per square inch; but, when placed vertically to the bed, it sustained a weight of 860 lbs. to 1,070 lbs. per square inch, before it crushed. In the first instance, the stone crumbled into powder; but, when placed vertically, it split diagonally, as had been adverted to by Professor Willis. Mr. Thompson accounted for the increased strength of the stone, when placed vertically, as follows:—The layers of shells formed long, flat, and thin arches on its bed; but, when reversed, the layers became either laminated columns or narrow lancet arches.

The area of one of the tower piers, as calculated by him, was 10,140 square inches; and, as the tower and spire had been reckoned at a weight of 6,000 tons, it followed that 1,500 tons, bearing on each pier, gave a superincumbent weight of 331 lbs. per square inch of surface. Now, as the piers were only cased with the stone laid in its bed (which crushes with a weight of 466 lbs. per square inch), and the interior was a mass of rubble stone, filled in with mortar in large lumps, some of it in a crumbling state; it appeared to him not surprising that the spire should have fallen down, but that it should have stood so long on such weak piers; and he considered that the early settlements which had been mentioned were as much due to the crushing of the stone as to the sinking of the foundations, from the excess of weight placed on them.

The Chairman inquired whether Mr. Thompson had found that the stone was placed bed-way.

Mr. Thompson.—Yes, in the very weakest way.

Mr. Wyatt asked upon what scale were the experiments that had been made.

Mr. Thompson said they were made with equal cubes of stone so as to compare them with others.

Mr. Burnell observed that with regard to measures which might have to be taken for the preservation of these buildings for the future, the subject was one that would require considerable attention. Lately, some important works had been carried out in France, and a cathedral tower had been underpinned with remarkable success. If a similar principle had been adopted at Chichester, he believed the spire might have been preserved. If the discussion was to be adjourned he would endeavour to collect all the information in his power on the subject, and put it into a connected shape.

The Chairman said there could be no question as to the desirability of obtaining such information; and the council would have great pleasure in appointing as early an evening as they could, consistently with other arrangements.

Mr. Morris thought it desirable, after what had passed, that those gentlemen who had been connected with the work of restoration should be exonerated from all responsibility in respect of the recent catastrophe. In his opinion the pendulum which Sir Christopher Wren affixed to the spire was sufficient by its vibration to account for the fall.

In reply to Mr. Papworth,

Mr. Gordon Hill said that, with reference to the south-west pier, it had exhibited a tendency to press outwards at two-thirds of its height; and that on the last day of its existence it threatened to bulge out 4 feet from the ground. He suspected that, when the ruins were cleared away, the pier would not be found to be more than 4 feet in height.

The Chairman, in putting the vote of thanks to Professor Willis, observed that he was convinced that all who knew him would be anxious to testify their sense of the great research, the extensive knowledge, and the great acuteness, which he brought to bear on architectural studies. The lecture entirely refuted the unfair aspersions, referred to by Mr. Hope, which had been thrown upon those engaged in the restoration of the cathedral; and it could not fail to be satisfactory to the public, and to the members of the profession generally.

The motion was carried *nem. con.*

The following gentlemen were, on ballot, elected Fellows of the Institute:—G. E. Pritchett, Associate, of 4, Great St. Helen's, Bishopsgate; John Henry Chamberlain, of Birmingham; and Henry Parsons, of Gresham House-chambers, Old Broad-street. Mr. William John Bodman, of East Dean, Hampshire, was elected an Associate.

ON THE ARCHITECTURE OF THE ELEVENTH CENTURY.*

WILLIAM OF MALMESBURY has given a letter from King Canute in 1031 stating that he has been to Rome, and, among many other things, that "the Emperor assented to my request, as did Rodolph, the King, and all the princes, and confirmed with an edict that my subjects, traders, as well as those who went on religious account, should peaceably go and return from Rome without any molestation from warders, or barriers, or tax-gatherers. Again, I complained before the Pope, and expressed my high displeasure that my archbishops were oppressed by the immense sum of money which is demanded from them when seeking, according to custom, the apostolic residence to receive the fall; and it was determined that it should be so no longer."

These frequent journeys to Rome throughout the Middle Ages had the advantage of keeping the English clergy always acquainted with what was going on in other countries, and they were always ready enough to make use of their information.

But at the period of which we are now treating, I believe it will be found on investigation that the other countries of Europe were in much the same state of civilisation as the English, and that buildings of stone were as rare in other countries as in England. At the end of the eighth century, in the time of Charlemagne, a spasmodic effort was made to revive the art of building in stone, but it soon died away.

We have a few isolated buildings of that period remaining in France and Germany, curious and interesting links in the history of art. As might be expected from the history of Charlemagne and his era, they present a curious mixture of debased Roman and Byzantine: two of the most perfect are the gatehouse of the convent of Lorsch, in the Bergstrasse, on the banks of the Rhine, which is debased Roman, and Germigny, on the banks of the Loir, near Tours. This is a mixture of Byzantine and Roman, the plan being a Greek cross with a central lantern and a sort of cupola, but with details rather of debased Roman than Byzantine.

After the time of Charlemagne for two centuries it is very difficult to find a stone building anywhere in the West of Europe. In Normandy there is one church which approaches in some degree to the character of the Anglo-Saxon churches. It is called Vieux Pont (in Calvados), and is built of Roman materials in a very rude style, with herringbone work and some other points of resemblance; and it has an inscription, but one which does not give a date: it is probably quite at the beginning of the eleventh century, but may possibly be of the time of Charlemagne.

It is probable, however, that there are many churches still remaining in different parts of France, or, more properly speaking, of Gaul, which belong to the first half of the eleventh century; and of several of these the history is so well preserved that it is necessary to give some account of them here.

Perhaps the most remarkable of these is the church of St. Front, at Perigueux, which is a regular Byzantine church, with its five domes. A considerable part of it has lately been *restored*, which means entirely rebuilt from the ground, but I was fortunate enough to see it before this was done and again while the rebuilding was going on. The original work was of rubble only and very rude, and numerous fragments of Roman buildings were used as old material in the mass of the walls: the Roman capitals were also used again. This church was consecrated in 1047. The nave of an earlier church still exists, and forms a vestibule to the present church, and the west front of it is tolerably perfect, though concealed by a house built against it. The work of this earlier church is debased Roman. The nave had a timber roof only, which has been destroyed.

The domical church bears so much resemblance to St. Mark's, at Venice, that my friend Mr. Felise de Verneilh, who has studied it very carefully and has published a work upon it, has no doubt that it was copied from that church. I consider it more probable that both were copied from a common type at Byzantium, as Venice was then only a subordinate city of the Byzantine empire, and the resemblance is not so exact as M. de Verneilh imagines: at St. Front the arches are pointed; at St. Mark's they are round; and there are other variations. In that part of Aquitaine called Perigord, of which Perigueux is the centre, there are about forty of these Byzantine churches with their domes, some of which have inscriptions recording their erection in the latter part of the eleventh and beginning of the twelfth centuries. These domes also exercised a considerable influence on the vaulting of the whole of Aquitaine, and a few straggling instances extend as far as Normandy.

The church of Bernay was founded in 1024, by Judith, wife of Richard II., Duke of Normandy. It is now a market-hall and has a west front of the seventeenth century, but the greater part of the walls are original, with the triforium and clerestory. These are very rude work, with baluster shafts. The aisles are vaulted with a series of small domes under a wooden roof: these are considered by Mr. Petit as original, and I am disposed to agree with him, although the French antiquaries consider them as part of the work of the seventeenth century, built at the same time as the west front. They are quite plain rather flat domes of rubble, or at least of small uncut stones, not of ashlar.

The celebrated and fine church of Tournus, on the Saone, was built between 1008 and 1019, and a portion of the original structure remains. The nave is vaulted with transverse barrel vaults across each bay from north to south, instead of the usual longitudinal vault. This arrangement is said to be unique. It is many years since I saw the church, and I did not then know the history of it, and did not clearly make out to what period the different parts belong, but it seems not improbable that the transverse stone arches originally carried a wooden roof only, as in many other examples, and that the vaults were put on subsequently, perhaps after a fire had destroyed the wooden roof.

The Cathedral of Auxerre was founded in 1005, and the crypt appears to be not long after that date: it is very rude, with wide jointed masonry and plain early capitals, which correspond with others in some of the other early crypts.

The church of St. Germain des Près at Paris was rebuilt after its destruction by the Normans, by the Abbot Morard, who died in 1014. A small part of the nave is said to belong to this period: it is plain and early-looking.

The cathedral of Nevers was founded in 1028, and parts of the existing building agree with that date: these are the western apse and the crypt under it, and the transepts with their chapels: the capitals are exactly the same as those in the crypt of Auxerre. The arches are square in section: the piers are square and massive, with heavy shafts attached to them, carrying a large round moulding under the soffit of the arch: the vaults are groined without ribs, and without transverse arches. The original church was small and cruciform, with a very short head to the cross, terminated by an apse. A new church was added eastward of it in the thirteenth century, and the eastern arm of the cross entirely rebuilt.

The church of the Ronceray, at Angers, was founded in 1028, by Foulques, Earl of Anjou, and a considerable part of the existing church is of early character, not long after that date.

The church of St. Hilary, at Poictiers, was rebuilt by Agnes of Burgundy, wife of William III., Duke of Aquitaine, and was consecrated in 1049. A part of the existing church belongs to this period: the greater part has been again rebuilt; but the plan and arrangement of the fabric probably belong to this century, though most of the ornamentation is later.

The fine abbey church of Jumieges was consecrated in 1067, and a considerable part of the existing ruins belong to this period: the capitals are plain and early: they have been covered over with plaster and painted.

These are all the dated examples of the first half of the eleventh century that I have been able to identify. I have a list of many others either founded or rebuilt during that period, but have not been able to ascertain what portions remain.

The churches of the Pyrenees were admirably described by Mr. Freeman, a fortnight since: they are of early character, and have belfry windows, with mid-wall shafts and balusters resembling those in England, and some of them are probably of the eleventh century; others more probably of the twelfth: their history has not been investigated: but in remote and mountainous districts the earlier style is generally continued to a later period than in more central places.

In Switzerland there are two or three churches which partake of this character. The tower of St. Maurice is built of Roman materials at the beginning of the eleventh century, and the belfry windows bear a resemblance to the Saxon baluster windows, but they are formed by using Roman columns taken from some older building, and these columns being too long for the windows, the lower part of them is built into the rubble wall as more easy than cutting the marble columns.

The church of Roman Motier has long and short work in the angles; but this may arise only from the nature of the building material.

In Germany occasional instances of resemblance are found, but it seems to arise more from their belonging to the same rude period than that one is copied from the other. The idea that the ancient Lombards were great builders in stone, and the predecessors in the art of the Normans, I believe will be found, on examination, to be altogether groundless. I have searched in vain in Lombardy for any work of any importance between the Roman period and the eleventh century. The absence of any examples of this period at Rome has been already mentioned.

The buildings of Pisa and Lucca, ignorantly attributed to the ancient Lombards, very commonly bear inscriptions recording their erection, and of others the history is perfectly well known.

They are the glory of the Pisan republic of the twelfth and thirteenth centuries, with sometimes portions of older buildings of the eleventh century, or earlier, built up in them. At Ravenna, at Rome, and in the cities of central Italy, the buildings are almost entirely constructed of brick, cased with marble, and they present nothing whatever from which the Anglo-Saxons could have derived the peculiar features of their buildings.

I believe that the style called Lombardic has as much to do with the ancient Lombards as the Gothic had to do with the ancient Goths, and no more. Both are convenient terms as indicating the races by whom they were used; but we must be careful not to be misled by these names into erroneous notions about the dates of the buildings, which is very frequently the case, even with popular writers who ought to know better. The buildings of Italy so constantly bear dates inscribed upon them, that a little examination of them is all that is required to ascertain this point.

To return to England and our supposed Anglo-Saxon churches, it is remarkable that, out of nearly a hundred examples, spread over twenty-nine different counties, there are so few of which we have any account, or even any mention in history: they are nearly all obscure village churches. The large number of sixty-three Benedictine monasteries were founded in England before the year 1000, but of this large number not more than three

* By Mr. J. H. Parker, F.S.A. See page 225, *ante*.

or four are found to have any existing remains of early character, and there are not altogether more than six out of the hundred early churches that remain to us, of which we have any mention before the year 1,000. These are the two crypts of St. Wilfred, at Hexham and Ripon, the walls of the church in the castle at Dover, and of the church at Brixworth, both built of the fragments of some Roman building, and in the rudest manner, and some portions of similar walls at Lyminge, Kent, and at St. Martin's, Canterbury. These exhaust the list of buildings which we can at all authenticate for the long period of five centuries. When we come to the eleventh century, the case is widely different: the great building era now begins, and we have a number of buildings remaining which we can identify and authenticate; and several of these are before the Norman conquest, as we have seen.

The Normans did not bring over an army of masons with them; and, although many of their soldiers were masons also, there is no doubt that their buildings were erected mainly by Saxon hands; and, as the Norman rule was not very readily or quietly submitted to, they were obliged, in the first instance, to turn their attention to building castles to keep the people in subjection. Forty-nine castles are enumerated in the Domesday survey, which was made about twenty years after the Conquest; and of these one only, that of Arundel, is mentioned as having existed in the time of Edward the Confessor. It is said that William attributed the facility of his conquest chiefly to the circumstance of the Saxons having no strong places to keep the Norman army in check, and that he set about providing them as soon as possible.

These early Norman castles are all built in the same type—a square massive keep or donjon, with the ground-floor vaulted for store-rooms, or stables, or prisons, according to circumstances; the entrance on the first-floor, with sometimes an external flight of stone steps; in other cases a drawbridge to an outwork.

These keeps do not appear to have been originally enclosed with stone walls: the custom of raising fortifications of a trench and vallum surmounted by wooden palisades was not yet abandoned: in fact, it was used occasionally long afterwards; and these keeps seem to have been usually surrounded by a double entrenchment, the inner one enclosing the inner ballium or bailey, or principal court, in which the keep was situated, the outer one enclosing the outer bailey or yard;—and this was frequently of considerable extent, in order to drive the cattle into it in case of need for protection.

This custom of enclosing two courts or baileys round a castle was continued throughout the Middle Ages; and in later times farm buildings were erected in the outer bailey; and by degrees in more peaceful times this was changed into the farmyard for the Manor-house.

The Norman keeps were so massive and so well built that a large number of them have been preserved in the present day, often upon no other ground than that it would cost more to pull them down, from the great strength of the mortar, than the materials are worth.

We have, however, very few castles remaining that appear to have been completed in the time of William the Conqueror. During the twenty-one years of his reign his hands were generally full. They seem to have been completed for the most part in the time of his successor.

William the Conqueror, either from real piety, or in order to make his peace with the Pope and with the Church, founded several magnificent abbeys, which he richly endowed; but to say that he built them is generally a mistake: the monks erected the buildings with the help of the funds which he gave them. The two most celebrated of these abbeys are at Caen, in Normandy. St. Stephen's, or the Abbaye aux Hommes, was founded by William in 1066, and dedicated in 1077, which shows that in eleven years so much of the church was completed as was necessary for the performance of divine service. It was the usual custom of the Middle Ages to consecrate a church as soon as the choir was completed, leaving the nave and other parts to be completed afterwards; but the foundations for the whole were generally laid at once, and the west front with one of the towers to hold the bells; and the transepts were commonly begun at the same time as the choir or very soon after it; and as the monks or priests must have some place to live in to enable them to perform the service, the domestic buildings of the abbey were generally begun at the same time as the choir, but they were frequently obliged to be content with temporary wooden buildings for a considerable time.

A careful examination of this building shows not only that the choir has been rebuilt in the thirteenth century, and the spires added at the same time, but that there is work of three periods antecedent to this, all belonging to what we call the Norman style, and that the whole of the west front which is so familiar to us from engravings, belongs to the second period: the original work terminates at the back of the western towers, which are placed against it with a straight joint all through. The original work can be distinguished on examination, more especially by the wider jointing of the masonry, but very little of it is visible to the casual observer. The main walls of the nave and transepts in reality belong to it, but they have been entirely concealed, and cased over in the interior to carry the vaulting, and the whole of the ornamentation of the interior belongs to the third period. The original construction, no doubt, belongs to the time of the Conqueror, 1066 to 1077, but a considerable interval must have elapsed between this and the second period, as shown by the difference of masonry and ornament, and it belongs in all probability to the last ten years of the eleventh century. It so happens that, in the course of my investigations into the history of Waltham Abbey, I have come across a bitter complaint of the monks of the robbery of that Abbey of all its treasures by William Rufus for the purpose of transferring them to the abbeys founded by his father and mother at Caen. The date of this complaint agrees so well with what I should expect to find from the architectural character for the second period, that I think we may with confidence assign it to that date. We have so long been accustomed to look on the west front of the Abbaye aux Hommes as the starting point, the type of the earliest Norman work, that this proof of its belonging to a period thirty years later than had been supposed makes a complete change in our chronology of Early Norman work. These western towers afford us further evidence: they contain a portion of the triforium of this second period, quite different from that now existing in the nave, and prove that the existing triforium and clerestory and vault, which all belong together, are of the third period, which is probably about 1160. A further examination of the passage through the clerestory makes this quite evident: the outer wall with this wide jointed masonry remains, but the whole of the inner face of the wall is of fine jointed masonry, and the junctions in the work are very evident, while neither the masonry nor the ornamentation agrees with the west front. My friend Mr. Bouet, of Caen, has made me a set of drawings of these details, which will, I think, make the matter clear, even to those who have not the opportunity of examining the building for themselves. Another peculiarity in the arrangement of the clerestory of this church has long been observed, but not explained. Each of the windows has only one sub-arch by the side of it instead of two, as is the universal practice. The cause of this appears to me to be this: the original church had no vaults: these were added to the aisles in the second period, but to the central space not until the third: the original timber roof was carried on stone arches at intervals, as was the case in the Abbey Church of Cerisy of about the same period, and in several English halls.

When the stone vaults were put on, these early stone arches interfered with the arrangement of them, and they were obliged to be accommodated to the spaces which they had to occupy: hence the apparent irregularity of the plan.

The character of the masonry of the earliest period is exactly the same as that of the early work at Westminster, which we usually attribute to the time of Edward the Confessor, but which may perhaps be twenty years later, as we have none of his church remaining.

The Church of the Holy Trinity, or the Abbaie aux Dames, at Caen, was founded by Queen Matilda in 1066, and the church was dedicated the same year, which is almost a proof that it was a temporary wooden church only; for a stone church would not have been built in the time, and there could be no reason why one of the two churches should require eleven years before it was ready for consecration and the other only one.

The work of the existing church is evidently of later date than the Abbaie aux Hommes. It was built at two different times during the course of the twelfth century, but hardly any of this church can be considered as belonging to the eleventh.

I have entered into the particulars respecting these two churches because they are considered by many persons as the foundation of all ecclesiastical architecture in England, and are appealed to as tests of the style in use at the time of the Conquest, for which purpose they are almost as fallacious as Malmesbury Abbey was to Carter and the antiquaries of the last century, who considered the existing building there as the type of the Saxon style.

I take this opportunity also of reminding you that in travelling on the Continent it is necessary to be very cautious how you receive the dates which are given you by the local guides, or even by Mr. Murray's excellent hand-books, which are necessarily compiled, in a great degree, from local guide-books and other foreign works. The dates usually assigned in such works are those of the original foundations only, without taking any notice of subsequent rebuilding, which has taken place everywhere, just in the same manner as in England. In many foreign countries the subject of Mediæval architecture has not yet been studied, and very few buildings have been subjected to the same searching investigation which Professor Willis has given to Canterbury Cathedral: his work is really the only safe guide to the history of all the great churches in Europe.

Wherever we go and examine the buildings carefully with their history, we find it amounts to much the same story: the character of each century is distinctly marked everywhere; and although there is, in each country and in each province, a strong national and provincial character, yet these are altogether subordinate to the character of the age in which the building was erected.

King William also founded Battle Abbey, in Sussex, on the site of the battle of Hastings, the year after the battle, but we have no work of his period remaining there.

In 1070-78, Archbishop Lanfranc rebuilt his cathedral at Canterbury; but within fifty years afterwards the choir was again rebuilt by Conrad and Ernulf, and the nave subsequently, so that we have none of Lanfranc's work remaining; from which we may infer that the work of this period was still very inferior to that of the twelfth century, or the architect would not have thought it necessary to rebuild work so recently erected. In further confirmation of this it may be mentioned that of the thirty-two Benedictine monasteries founded in the eleventh century, there are only three or four of which we have any buildings remaining that belong to this period. Of the Cluniac priories, four only belong to this century—Lewes, Castleacre, Wenlock, and Bermondsey,—and in neither of these, I believe, are there any remains earlier than the twelfth century.

In the years from 1070 to 1095, the Abbey of Bury St. Edmund's was rebuilt by Abbot Baldwin, assisted by the sacrists Thurstan and Tolin. "The Church of the Monastery, consecrated in 1035, having been for the most part, like its predecessor, built of wood, though not finished, was still unworthy both of St. Edmund and of the establishment endowed with such magnificent remedies as St. Edmund's Bury: accordingly, under the auspices of Abbot Baldwin, the sacrists Thurstan and Tolin demolished the church which had been so recently constructed. King William the Conqueror on this occasion issued his precept to the Abbot of Peterborough, commanding that the abbot and convent of St. Edmund should be permitted to take sufficient stone for the erection of their church from the quarries of Barnock, in Northamptonshire, granting at the same time an exemption from the usual tolls chargeable upon its carriage from that place to Bury." Baldwin was a monk of St. Denis, at Paris, then prior at Deerhust, in Gloucestershire, a cell to St. Denis. Lydgate says "he was greatly expert in craft of medicine." King Edward the Confessor granted to him for his monastery the privilege of a mint. He was also in great favour with King William the Conqueror, under a charter from whom he made considerable acquisitions to his monastery."*

The new edifice was completed in 1095, and the body of St. Edmund was translated into it in 1096.†

The square massive gateway tower of the abbey is standing, and probably belongs to this century: the shallow porch and rich doorway on the west side are evidently insertions of a subsequent period.

The building of the churches of Jarrow and Monkswearmouth, in the county of Durham, is recorded by Bede, and the dedication stone of Jarrow has been preserved, recording the date of 685. It was long considered that the existing towers belonged to that early period; but the researches of the late Dr. Kaine have demonstrated that they have both been rebuilt subsequently to the Norman Conquest. The original churches were destroyed by the Danes in 867, and had laid waste for above two hundred years, when some monks from Durham endeavoured to restore them to divine service: they found the walls alone standing, without a roof, and choked up with trees, briars, and thorns, as we are told in the Chronicle of Simeon of Durham, who was living at the time. This was in 1075, and "shortly after, when the bishop saw the monks wishful to rebuild the church itself, and the ruined monastic dwelling-places, he gave them the vill of Jarrow and its appendages." There is little doubt that they carried out this intention: the masonry of the existing tower is of early Norman character, but not earlier, and a portion of a Saxon cross is built in as old material.

The history of Monkswearmouth is the same as that of Jarrow; but here it would seem that the new church was not on the site of the old one, for Dr. Kaine has found mention of the old church, used as a barn, in 1360, in an inventory of the cell of Monkswearmouth preserved at Durham; and again in 1447, where it is called in English "the Alde-Kirke." These inventories have been printed by the Surtees Society, edited by Dr. Kaine.*

A.D. 1077-1115, the church of St. Alban's Abbey was entirely rebuilt by Abbot Paul, of Caen, according to the distinct evidence of William of Malmesbury, Henry of Huntingdon, the "Saxon Chronicle," and the "Annals of St. Edmund's Bury." I am particular in mentioning the authorities in this instance because the fact has been much doubted, and the character of the work is earlier than we should expect to find at this time,—partaking very much of the Anglo-Saxon character, and built partly of Roman tiles from the neighbouring city of Verulam, mixed with rubble-stone work, the joints of mortar, very wide, and baluster shafts used abundantly in the windows. Abbot Paul died in 1093, and the work was completed by his successor, Richard de Albini, and consecrated in 1115, in the presence of King Henry I.

The church of Waston Warren, in Warwickshire, which is of the style called Anglo-Saxon, was given by Robert de Toms, standard-bearer to the Conqueror, as a cell to the Abbey of Couches, in Normandy, not long after the Conquest, and was probably built about that time.

A.D. 1079-1093, Winchester Cathedral was entirely rebuilt by Bishop Walkelyn on a new site: the crypt and the transepts of this period remain, and the work is of very early Norman character, closely resembling the original part of St. Stephen's at Caen, and very little in advance of St. Alban's, or of the Confessor's work at Westminster.

The capitals are of the same simple form,—merely a cube with the angles rounded off, which is called the cushion capital,—but the abacus has the Norman chamfer under it, and the bases are moulded: the masonry is still wide-jointed, but not quite so rude. The plan of the church was on the same magnificent scale as the Norman churches of the twelfth century generally are, but the ideas of the architect seem to have been rather in advance of the skill of the workmen, for the central tower fell down in 1107 and was rebuilt in a more substantial manner.

The mass of masonry used for the piers of the new tower is enormous: the workmen evidently were determined that it should not fall again, and compensated for their own want of skill by the mass of material they wasted: in the new work the masonry is fine jointed, and this serves to distinguish it from the old.

The crypt belongs to the original work, and the pillars of it are nearly as short and as massive as those of the substructure at Westminster; nor are the capitals much, if at all, in advance. Some of the capitals in the transepts have evidently been carved at a subsequent time.

Ely Cathedral was commenced by Abbot Simeon, brother to Bishop Walkelyn, in 1083, and was dedicated in 1106: part of the nave and transepts belong to this work, though probably built after the dedication of the choir, and, therefore, belonging rather to the twelfth century: the work is somewhat in advance of the early work at Winchester.

The chapel in the White Tower, London, is said to have been built by Bishop Gundulph in 1081. The original work is extremely plain and massive, but not rude: it was the chapel of the Royal Palace, and, therefore, might be expected to be the best work of the age. It has a plain barrel vault: the arches of the triforium are perfectly plain, with square piers, without any shafts or imposts: the pier-arches are also plain square-edged and not recessed, but they are carried on round pillars with capitals and moulded bases.

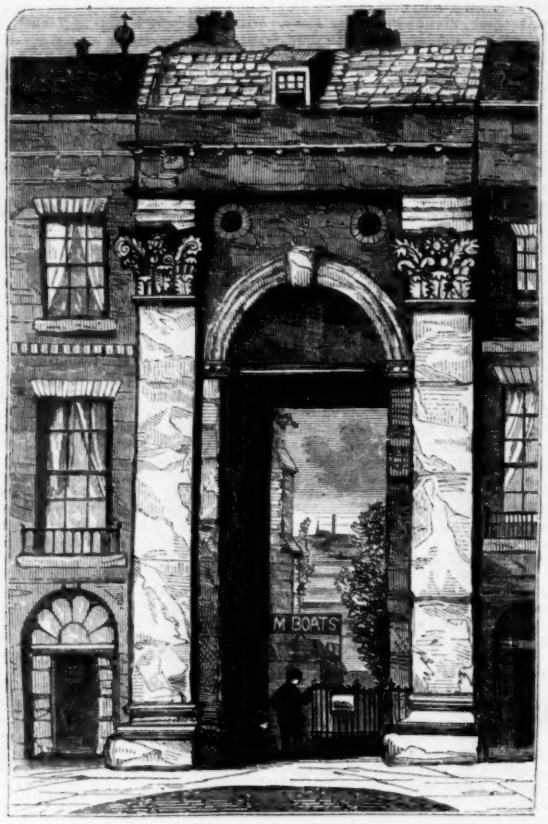
The original capitals are of the cushion form, with the Norman chamfered abacus, some of these have been carved afterwards, being, like those at Westminster, just of a convenient height for the purpose: others have the peculiar Tau cross in the centre, which is one of the characteristics of the latter part of the eleventh century, and seems to have been intended to be carved in imitation of the caulicoli of the Classical capitals. This chapel is on the second and third floor of the tower: the aisles of it are carried on the solid walls of the first floor, a waste of material which betrays unskilful workmen: there are no passages in the thickness of the walls excepting in the upper story. The council chamber which adjoins the chapel is still more plain and rude: it has no arches, but wooden posts in two rows to carry the floor above, and this seems to have been the original arrangement. Nearly all the windows throughout the building have been modernized and enlarged: only one remains in its original state in the chapel. On the exterior the only original features are the early plain flat buttresses and the masonry.

The cathedral of Worcester was rebuilt by Bishop Walstan, who had increased the number of monks from twelve to fifty. The foundations were laid on a new site in 1084, and the church was consecrated in 1089. As five years was not sufficient time for building so large a church, it is evident that the choir only was completed when it was consecrated according to the custom of the age. William of Malmesbury records that when the procession of monks took place, translating the relics from the old church to the new one, the bishop wept instead of rejoicing; saying that he feared the sumptuousness of the new buildings would make them forget the simplicity and piety of the primitive times. This is evidence of the larger scale of the new buildings, their greater magnificence, and that they were on an entirely new site. The crypt of this period under the choir remains perfect. The choir itself was rebuilt in the thirteenth century, and the nave is of several different periods, begun at both ends, and meeting in the middle with a very clumsy junction.

* See Mon. Ang., vol. iii. p. 101, and the extract from the Register of the Abbey, preserved in the office of the Duchy of Lancaster, fol. 84, ibid. p. 102.

† MS. Harl. 447; also Mon. Ang., vol. iii. p. 102.

* Inventories of Jarrow and Monk's Wearmouth. 8vo. Durham. 1854.



THE WATER GATE, ESSEX STREET, STRAND.

That the country had suffered severely from the long unsettled state it was in during the reign of the Conqueror is evident from many passages in contemporary documents, especially from the Domesday survey; and this sufficiently accounts for our not having many buildings of this reign, and not much progress visible in those that we have. For instance, in the city of Oxford there were in this last year of his reign 243 houses paying the tax to the king, and 478 houses so waste and decayed that they could not pay the tax. These were evidently wooden houses only. The manner in which the taxes had been increased is also shown by the statement of the Commissioners, that in the time of King Edward, twenty pounds a year was paid by the City, and now in 1086 it pays 60*l.*, equal to about 1,200*l.* of our money; and as the number of inhabitants according to the usual reckoning of five to a house had been reduced to one-third of this number, or from 3,600 to 1,200, the tax amounted to a pound a head on the average. Besides the houses enumerated there were twenty mural mansions paying only 14*s.*, because they were liable to keep the walls in repair. These walls were probably earthwork, with wooden palisades only, which were continually wanting repairs.

The last ten years of the eleventh century belong so completely to the twelfth in the style of architecture that no line of distinction can be drawn, and the architecture of the twelfth century, the great era of the Norman style when fully developed, is far too wide a field to enter upon at the end of a lecture, which I fear has been already far too long. If I have succeeded in awakening any degree of attention to the eleventh century, which has long been too much neglected, I shall accomplish the object that I proposed in addressing you.

SCRAPS OF OLD LONDON.

THE WATER GATE OF ESSEX HOUSE, STRAND.

GREAT changes have been made since the north side of the Thames at London was lined with the stately mansions of the nobility. If we now wander over this site, it will be found that of those abodes which some 300 years ago were centres of fashion, as homes of the old English aristocracy, few traces now remain. Northumberland House is the most important. In a narrow lane towards the east, a portion of Durham House may be seen: not far off is Buckingham Gate. The place called the "Roman Bath" may have been a portion of Norfolk House; and there are some old fragments at and near Whitehall: with these exceptions, and the gateway shown in the engraving,—all these important houses here, which were so familiar to Londoners, have disappeared. Printing-offices, warehouses, and other useful establishments, have taken possession of the site once belonging to the Bishop of Durham, the Duke of Norfolk, the Earl of Essex, and other worthy and unworthy personages.

In the old days, when the pavement of London streets was in a bad state, when land carriages were not in use, the water-gate of a gentleman's mansion, particularly when the Court was at the Tower or Whitehall, was an important adjunct.

At the Tower, the water-gate, which is connected with so many historical associations, may still be seen. There is a water-entrance to Somerset House, and Buckingham gate still remains, and will well repay the trouble of close inspection, when the tide is in, and the last of the Westminster watermen is at hand.

The water-gate of Essex House will be found at the bottom of Essex-street. Many pass under it to and from the steam-boats without noticing its interest. In a view of the Thames, showing the Frost Fair, in the reign of Charles II., the King, Queen, and others of the Court, are seen coming down the Temple Garden stairs, to witness the sports on the ice; and in part of the background is the archway, and beyond the archway are the gables and other parts of Essex House. A garden, with terraces, is between the arch and the river.

Through the gate as it now stands we have a peep at the Thames, and a portion of the new library and greenery of the Temple.

THE CRADLE OF THE ARCHITECTURAL MUSEUM.

THE quaint and ancient congeries of wooden buildings in Canon-row, Westminster,—the immortalized "cock-loft," in which lords, ladies, and commoners assembled to inaugurate the "Architectural Museum," and afterwards, many a time and oft, to view the collection and hear of its progress,—has flashed out of the world in fire and smoke; in plainer English, has been burnt down. A sketch of its many gables, and a larger view of the interior, will be found in one of our earlier volumes. It was a piece of Old London, oddly hidden away and preserved. Having done its best in the world, it has vanished out of it, streaking the sky with flame and covering the river with a sable coat. Poor cock-loft!

LIVERPOOL ARCHITECTURAL SOCIETY.

AT the fourteenth meeting of this society, held on Wednesday evening, the 3rd inst., Mr. James M. Hay, the president, occupied the chair.

Mr. Wm. Stubbs read a paper, entitled, "Iron Construction." At the close of it he said,—"Simple rules are sufficient; and as an instance I may quote one for the strength of pipes that has never been printed before, but which I am certain answers perfectly well for ordinary sizes. It is based upon the fact that a 10-inch pipe, 1 inch thick, will stand 100 yards pressure of water. The coincidence of 1 inch metal, 10 inches in diameter, and 100 yards pressure, is sufficient: for every inch in diameter increase or deduct by one-tenth of an inch, and for every yard of pressure add or deduct one hundredth of an inch. For columns, calculation requires care, as the circumstances vary very much; but a safe plan is to find the diameter of a solid column necessary to bear the compression, and then distribute the same area of metal in a tube to form a hollow one, and if the thickness of the metal is proportioned so as to be one-seventh of the external diameter, the strength of the column will be increased by more than half. The diagram shows also a simple plan of doing this. The line BC, which is simply a tangent touching the inner circle, is the diameter of a solid column, containing the same metal as the hollow one. A convenient example to remember, as a guide, is the remarkable fact that a column of this sort 10 feet long, having an area of 10 inches of metal, will bear ten tons. These are the kind of rules which can be carried about for use at a moment's notice; for, after all, it is really not so much what we know as what we can make use of that is valuable."

The President said the mixing of timber with iron never seemed to work well, and he should have liked to have heard some observations on that point. He rather questioned the remark made in the paper, that painting iron with the rust upon it was better than painting it before any rust had accumulated on the surface. He had observed that, when the rust was painted over, corrosion still seemed to go on.

Mr. Stubbs, in his reply, adhered to the opinion that it was better to paint into the rust than on the smooth surface. The rough rusted surface of iron had in some measure a porous character, over which the oil, if properly rubbed in, formed a thicker coating, and was less liable to strip off.

The President said that, perhaps Mr. Nichol could throw a ray of light upon the subject of the present strikes.

Mr. Nichol replied that all he could say was that they were coming to a crisis of some sort or other; and that, as a large employer, he was prepared to close his place for months.

GOVERNMENT COMMITTEE ON THE HOUSES OF PARLIAMENT.

ON Monday last the committee appointed by the Government to inquire into the causes of the decay of the stone used in the erection of the Houses of Parliament, and to suggest, if possible, a remedy, closely inspected the works with a view to a report. There were present Sir Roderick Murchison, Mr. Tite, M.P., Mr. G. G. Scott, Mr. Sydney Smirke, Mr. G. Godwin, Professor Frankland, Professor Hofman, Mr. C. H. Smith, Mr. G. R. Burnell, Professor Abel, Professor Ansted, Mr. Digby Wyatt, Mr. Hawksley, and Mr. Bonham Carter (secretary). The committee were occupied nearly the whole of the afternoon in the investigation. Mr. Quarm attended, as the representative of the architect, to give such information as might be needed. A day was fixed to receive statements from those who have applied remedies to the stone-work. The particulars of any new modes founded on direct experiments, and tested by time, would doubtless be well received by the committee, and properly considered.

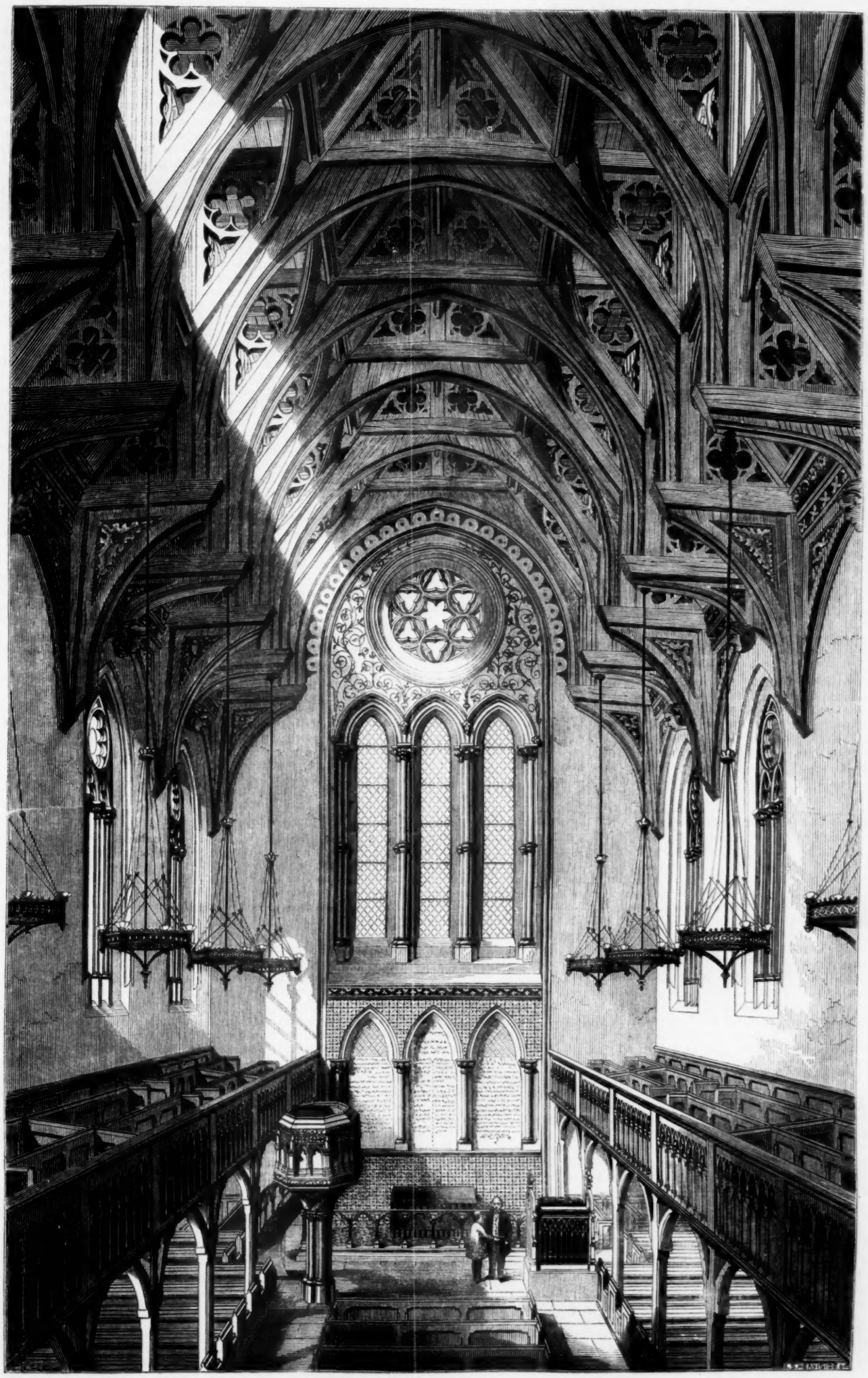
HOLY TRINITY CHURCH, KNIGHTSBRIDGE.

THE Holy Trinity Church, on the north side of Knightsbridge, was consecrated on the 30th ult. by the Lord Bishop of London. In our last volume we gave a view of the exterior.* The accompanying engraving represents the interior, looking east (ritually), but north in reality. Its largest dimensions are 76 feet by 38 feet, and it is 65 feet high to the ridge. It provides accommodation for about 650 worshippers, and has cost about 3,300*l.* The principal peculiarity about the building, as we before mentioned, is the roof, which is so constructed as to have a continuous range of clerestory lights the whole length of the church. These are accessible from the *out*side, so as to regulate the ventilation.

Messrs. Dove, of Islington, were the builders, and Mr. Raphael Brandon and Mr. Eyton were the architects.

We must note that, since the drawing was made, the mode of lighting has been altered. Uprights are affixed against the front of the gallery, with burners at top and at bottom, to light above and below the gallery. Further, the coloured decorations at the altar end and the panelling in the gallery front are postponed.

* Vol. xviii. p. 249.



HOLY TRINITY CHURCH, KNIGHTSBRIDGE.—Mr. R. Brandon and Mr. Eyton, Architects.

THE NEED OF CHANGE IN THE POOR LAW.

In a short time the management of the pauper population must be brought, in a prominent manner, before Parliament; and certainly few subjects could be discussed by the House of Commons of more universal importance than the condition of the poor of the realm. We therefore trust that, setting aside all prejudices, and all special or local interests, the discussion will be so managed, that general good will be the result; and, without materially adding to the public cost, that the great masses of the poor will be no longer treated by poor-law or parish boards in a manner which is not creditable to a prosperous nation.

We feel it a duty to direct attention, just now, to a few points which are worthy of notice; and in the first place, we may glance, though but slightly, at the extent of pauperism in Great Britain.

In 1851, according to the last census report, there were 132,704 inmates in the workhouses. This, however, gives but a small idea of the number of persons dependent on the poor-rates, or other charitable sources, for a maintenance, during times of permanent or periodical distress. At the taking of the census of 1851, for instance, there were 9,876 inmates of hospitals: there were also many in the national hospitals of Greenwich and Chelsea: a vast number were assisted by out-door parish relief, and the London magistrates' poor boxes: to asylums such as St. Luke's, the poor are admitted to a certain extent: there are alms-houses for soldiers' and sailors' children; schools more or less supported by charity; besides training and reformatory establishments, also supported by the benevolence of various classes, in which numbers who would be otherwise destitute find support.

Cost, in all management, is no doubt an important consideration; but there should be higher motives than mere money in our care of the poor; who should not, in the time of their great distress, be insulted, brow-beaten, and treated (as they often are by parish functionaries) in a way which no humane person would think of subjecting them to.

Of the 132,704 who were lodged in the workhouses at the date above mentioned, it is shown that under five years of age there were 6,192 males and 5,735 females, in all 11,927; of the age of five years, males 10,236, females 8,550, in all 18,786; of ten years, males 11,441, females 8,495, in all 19,936.

These figures show that 50,649 children, of both sexes, in the workhouses, were at or under ten years of age.* By good management such a state of matters might be turned to a profitable account, but neglected it will become a prolific source of evil as well as of cost.

Dr. Farr has shown, by ingenious calculation, that the average value of an agricultural labourer, of the age of twenty-one years, is about 220*l*. According to this, if these 50,649 children were properly trained in habits of industry, so that they might be fitted for agricultural labour; and even though 25,000 of them only should live to the age of twenty-one years, we should by this means have added to the material wealth of the country no less than 5,500,000*l*.

Great improvements have been effected during the last few years in the management of the infant pauper population of the country; but a vast deal still remains to be done; and while it is by no means advisable to make the workhouse accommodation so good as to cause the working classes to contrast unpleasantly the condition of their own families and dwellings with that of the inmates of workhouses, it is clear that those who from various causes have been forced to go to the workhouses should have better diet and treatment than criminals such as those whose conduct has been lately so notorious at Chatham.

There are peculiarities in the treatment of the pauper population which require alteration.

Hundreds of instances might be given of cases where the proper management of temporary out-door relief would have saved a whole family from pauperism, and from being a permanent burden to the public; and in actual £. s. d. a saving might have thus been effected, to a parish, of several hundreds of pounds for every such family. The other costs and evils of the present system it would be difficult to state briefly. A workman with a family of children loses his tools by fire; or it may be that he is stricken with fever or other sickness: a little timely assistance would often enable those so situated to recover or preserve a humble but useful home.

* This is upwards of one-third of the pauper population resident in workhouses.

It seems to be the usual practice at present that, if a man apply for parish out-door relief, he is offered work in the stone-yard. This is no great hardship to a "navigator," or to others used to rough employment; but by a watchmaker, a tailor, French polisher, and many other workmen, this labour cannot be done except in great misery, and even bodily pain. It is also usual to examine the furniture of those who so seek help; and it is known that aid is refused if the effects be of greater value than 4*s*.

This reminds us that we want a different classification of the inmates of the workhouses than is at present customary. The writer has frequently met with persons in these places, within the metropolitan district and elsewhere, who were reduced to seek a shelter in them, though possessed of learning and ability; and many who have been engaged in large businesses, and have for years contributed to the support of the poor themselves; and yet these ruined men and women are clad in the same humiliating livery, and treated in no way different from those who have been all their lives a burden on the parish. This phase of the question is well entitled to humane consideration.

In glancing at the return by the Registrar-General of the pauper population of 1851, it will be found that, in England and Wales alone, amongst those in the workhouses were 2 union relieving officers; 1 master of a workhouse; 1 army officer; 2 army half-pay officers; 1 barrister; 7 solicitors; 7 surgeons; 26 druggists; 10 painters (artists); 82 schoolmasters; 23 innkeepers; 1 merchant; 2 ship agents; 3 brokers; 3 auctioneers; 15 accountants; 118 commercial clerks; 11 commercial travellers; 6 pawnbrokers; 14 publishers and booksellers; 14 engravers; 4 surveyors; 6 builders; 74 grocers; 20 tobacconists, &c. This list might be prolonged to a great extent to show that, amongst the males who have sunk to the necessity of applying to the parish and residing in the workhouses, a considerable number have been in superior circumstances, and have probably paid largely to the rates.

There can, we think, be no question of the immediate need of an equalization of the rating of the metropolitan districts; and perhaps it would be advisable to strike an equal rate throughout the kingdom for the support of the poor. This would prevent the increase of pauperism in districts which are at present almost bankrupt,—such, for instance, as Coventry, and the eastern and several other parts of the metropolis. On improved arrangements in this and other respects the welfare of the agricultural, and of many other classes, of labourers in a special manner depends. The equalization of the poor-rates, and their general reduction, where in excess, throughout the land, would be a means of preventing certain landowners from driving out their surplus agricultural labourers, or those who have numerous children, from the land; and, in other situations, would lead to a beneficial change in cottage accommodation.

The right care of the poor, who, it is said, on the best of all authorities, "shall not cease from the land," is a national duty. It is unfortunately the case, however, that, owing to the hurry and struggle of modern life, many who, by their intellect, disinterestedness, and kindly feeling, would make useful members of parish boards, shrink from the duties of such an office. It is to be wished that this were not the case, and that arrangements also could be made for the election on to these boards of some of the most intelligent of the working men who are ratepayers.

How far the superior accommodation and better treatment of criminals than of the honest poor may have tended to fill the jails while emptying the workhouses is a fearful question, which may not easily be settled; but it is one of most serious responsibility, both to the legislature and the Government, and requires the gravest consideration.

ON BRICKWORK.

ARCHITECTURAL ASSOCIATION.

The ordinary meeting of members was held on Friday evening (the 5th inst.), at the House in Conduit-street.

The president, Mr. T. Roger Smith, occupied the chair.

Mr. G. R. Julian, of 13, Neville-terrace, Onslow-square, and Mr. W. C. Branguyn, of 2, Cemetery-terrace, Scarborough, were, on ballot, elected members of the Association.

The Honorary Secretary announced that he had communicated the resolution agreed to at a recent meeting of the Association, on the subject of the Exhibition of 1862, to the various architectural bodies, and had received acknowledgments from the Royal Institute of British Architects, and from the Architectural Museum. He concluded by moving that the president, vice-president (Mr. Blomfield), Mr. J. D. Wyatt, and Mr. A. Allom be appointed a committee to examine and report upon the drawings submitted for the prizes to be given by Mr. Tite, M.P.

The resolution was agreed to.

The President having expressed a hope that the members generally would exert themselves to make the *conversazione* on the 19th inst. as agreeable as possible to their friends, reminded the meeting that Friday, the 12th inst., would be the latest day on which drawings could be received for the prizes offered by Mr. Tite. These prizes would be given for the best Essay on Street Architecture, and for the best Series of Sketches made by the class of design. He was happy to say that Mr. Tite had written to him to say that, unless prevented by Parliamentary business, he hoped to be able to attend the *conversazione*, and present the prizes in person.

Mr. J. B. New then read the following paper "On Brickwork."

My subject, you all know, is bricks: allow me, therefore, without irreverence, to open it by saying that I hope the members of this Association will ever be, in the fullest sense of the word, "regular bricks, so well cemented and bonded together, that this Association, in the metaphorical character of a most substantial edifice, will last time immemorial."

In appearing before you to-night, permit me to express a regret that my unavoidable absence from London should have prevented me from following up the excellent remarks on foundations, made by our worthy Associate, Mr. Bunker; for unhappily it has broken the wished-for uninterrupted line or series of discussions on Practical Architecture; and while we can all agree with Mr. Christian, that it would have been far better for the remarks on masonry to have followed brickwork, we are equally convinced that it would have been far better for the remarks on brickwork to have followed those on foundations. Under these circumstances it would appear advisable to retrace the question of foundations, propounded by Mr. Bunker; on which occasion we came to the conclusion that "gravel" was the best natural foundation, with the exception of rock, which was not always to be depended upon; and that concrete ranked among the best artificial foundations—not omitting the large or broad blocks of stone, which our good friend, Mr. Billings, so humorously designated "the man with a big foot."

But a word or two before I proceed. Our syllabus for the present session sets forth that a paper will be read by Mr. Bunker, myself, and others, "On Foundations," "Brickwork," "Masonry," and "Carpentry." Now I, for one, with others who proposed the introduction of these subjects on practical architecture, never intended they should be presented in the form of what is usually termed a paper. At the same time I hope you will not misunderstand the intention of these remarks, and run away with the impression that I object to the reading of papers: far be it from me to object to so excellent a medium of imparting information; and, for one, I heartily thank those gentlemen who have so kindly favoured us with the result of their researches in so concise a form as a paper thereon; not excepting many excellent ones we have heard this session: that of Mr. Kerr, the last one read, will repay us all for a perusal again and again.

But, pursuing my remarks, our intention on these evenings was merely to introduce the subject in a conversational form, upon any points of importance that might strike us would be interesting and instructive to the junior members of the Association; based, in a great measure, upon the experience of our own practice; and by that means draw forth some practical remarks from our senior members, and thus prove a golden opportunity of gaining a good deal of practical information from each other. I am glad Mr. Bunker did not write a long paper: you will, therefore, not be surprised when I say that I am not come prepared with a long paper to read to you this evening; nor is it my intention to enter into any of the abstruse geometrical principles of the science of construction, such as would be necessary to develop the formation of vaulting, doming, arching and groining, &c. All this is very necessary for the student of architecture to know: at the same time the treatment of such subjects would be very much out of place to-night; our object being to elucidate, to a certain extent, the

everyday practice of bricklayers' work; and, following out the excellent suggestion of Mr. Kerr, we will confine ourselves to the limits of such works as would be required in the erection of a country house.

I will now, therefore, only briefly advert to the definitions of brickwork, and then proceed.

I find, in Gwilt's "Encyclopædia of Architecture," and in Nicholson's "Dictionary and Practical Builder," brickwork or bricklaying is defined as the art of building with bricks, or of uniting them, by cement and mortar, into various forms for particular purposes.

According to Gwilt, a brick is a factitious sort of stone manufactured from argillaceous or clayey earth (the principal property of which is well known to be alumina). After being mixed with coal ashes or breeze, &c., it is well tempered and squeezed into a mould: when so formed, bricks are stacked to dry in the sun, and finally burnt to a proper degree of hardness in a clamp or kiln.

On the best of authorities, the use of bricks is of the greatest antiquity, and the cement used in the earliest periods was a kind of bitumen, it is said. In this manner the city of Nineveh was built by Nimrod, and the justly celebrated walls of Babylon, estimated by the Greeks as worthy to be numbered among the wonders of the world, were erected in the same materials.

One author says, "For the purposes of building, bricks claim a decided superiority, not only as being lighter and more easily worked, but also because their porous texture facilitates their union with the mortar, and makes them less liable to attract or retain damp and moisture;" an assumption which I question the admission of by many. Be that as it may, there is one thing very certain; and that is, that good brickwork is far superior, in point of durability, to much of the stonework of the present day.

The names of the bricks in general use in our modern works are, gray stocks, red stocks, washed stocks, place bricks, marls or malms of two qualities, called first and seconds, red rubbers or cutting bricks.

The gray stock is the most useful brick we have, made of good earth and burnt: it is well adapted for any work where strength and durability are required, as in external walls, counter or discharging arches, piers, or underpinning, and forms a very good front when carefully selected of a uniform colour.

The red stock which is so freely used now in the fronts of our modern structures is made of a clay containing much oxide of iron. The finest description of this brick, made from the purest clay, is called a red rubber or cutting brick, used only for gauged arches and very superior work.

The washed stock is made of a purer clay than the common stock, is of a yellow tone, and equivalent in appearance to the marl seconds for facing of fronts.

The place brick consists of half-burnt clay; and consequently what is termed sammel, or soft, is of a dark red colour, and readily crushed and crumbled. Of late years the place bricks have been so exceedingly bad that, in my opinion, they are worthless as a brick, and only fit to be broken up and used for burnt clay for paths or beds for pavings, drains, &c., and should strongly recommend the rising members of the profession to prohibit the use of them in their specifications.

The marl or malms, as they are sometimes called, are fine yellow-toned bricks of two qualities, firsts and seconds, both of which are much used as facing bricks. There is another description of malms, a harder degree of brick, used for the purposes of paving, and called malm paviors. There is another description of bricks, called Dutch clinker, which are exceedingly hard and vitrified, and are sometimes used for paving stables and yards, but more frequently for building ovens or furnace work; but the best bricks for such purposes are what are called fire-bricks: they are chiefly made at Hedgerly, and hence they are known by the name of Hedgerly bricks.

There are two more descriptions of bricks worthy of notice, which of late years have been extensively used in our modern structures.

The first are the fine white brick made in Suffolk, and denominated White Suffolks, expressly made for facings. Some have of late been introduced in moulded forms; which forms, when judiciously treated, have a very pleasing effect in window dressings, strings, and cornices; superseding the necessity of cutting and rubbing bricks to splays and other forms, which look well to the eye, while the process of cutting and rubbing injures the brick as an external material; as the crusting or outer surface of a brick is more durable than the interior; and, therefore, better calculated to withstand the ravages of time, particularly in our changeable climate.

Again, the moulded bricks in window dressings, strings, and cornices, are superior in appearance and durability to cement dressings; and I have no doubt, when they become more generally known and more extensively applied, they will altogether supersede cement mouldings; for the greater the demand the cheaper will the manufacturer be able to supply them.

Last, but not least, are the patent machine-made perforated bricks, invented by a person of the name of Beart: hence they are known by the name of Beart's Patent Bricks, and they are readily moulded at a very moderate expense to any pattern or drawing you like to send them. They are not equal in appearance to the white Suffolk brick, but much cheaper, and in that case a desideratum when the question of expense is to be studied. Burrs do well for foundations, being often as hard as clinkers.

The lecturer then proceeded to refer to mortars, including those composed of chalk lime, stone lime, Dorking sand, Thames sand, pit sand, and road grit, and to their being well tempered and beaten with a mortar beater. When the materials are well mixed, employ the composition quickly, as the least delay may render the application imperfect or impossible.

As to mixing and blending, M. Felibien observes that the ancient masons were so scrupulous in this process that the Greeks kept ten men constantly employed for a long space of time to each basin. This rendered the mortar of such prodigious hardness that Vitruvius tells us the pieces of plaster falling off from old walls served to make tables.

The same Felibien adds—it was a maxim among old masons to their labourers that they should dilute it with the sweat of their brow—*i.e.* labour it a long time, instead of drowning it with water to have done the sooner.

As to cement, the best for constructive work is Atkinson's proportion,—half and half. The choice of fit and proper materials is a very important duty devolving upon the architect; and the adaptation of such materials to the specific work intended to be performed requires great care on his part. At the same time it is his duty to see that the works are carried out in the most workmanlike manner, based upon the best principles of architectural construction.

I think it may with justice be said there is no portion of a building that requires more care and attention to these essential points than the walling of the structure, whether of brick or stone.

The foundations having been treated of, footings are our first consideration. Walls composed of bricks should be so constructed that the component parts should form one compact mass. Too much attention, then, cannot be paid to the best mode of disposing the bricks in a wall, so as to form such a bond as shall constitute the wall a compact mass.

Old English bond is decidedly the best, alternately composed of headers and stretchers.

Flemish Bond.—The same course consists alternately of headers and stretchers. Facings are bad, as they break the bond.

The lecturer then referred to perpends being kept true, to king closure in reveals, queen closure to keep the bond uniform, to birdsmouth, piers over openings, grouting with liquid mortar, iron bond discharging or counter arches over lintels, arches—front face over apertures, bow arches which should be cramps to lintel, discharging arches in old work, &c.; and stated that the tops of wall should have throated copings. Brick on edge and tile coursing are not good.

He next alluded to courses put on sand for stone landings, to oversailings, underpinning, and pointing, including tuck-pointing, with plaster inserted in the joints with a regular projection, and neatly pared to a parallel width.

He then spoke in favour of air flues from every room, and of the advantages of cavity walls. Proceeding, he said,—Near to us is a fine specimen of good brickwork, though the smoke of London has made it look very dingy; that is at the south-west corner of Hanover-square.

Another fine specimen of modern brickwork is to be seen at the St. Katherine Dock, built by George Clements. That poor man is now provided for in his old days by the Builders' Benevolent Institution. Lord Alexander Baring Ashburton's house, 82, Piccadilly, is generally considered to be the finest specimen of modern brickwork, built by George Harrison.

Mention might be made of the church in Margaret-street, All Saints', and of the schools at the corner of Endell-street, which are built in old English bond. As to smoky chimneys, the lecturer recommended that the flues should be contracted towards the centre, and have a wide opening near the fireplace, so as to admit of a free current up and down.

At the conclusion,

The President, having referred to the practical nature of the paper just read, observed that Mr. New had not referred to block bricks; neither had he said anything on the mode of forming a judgment on the selection of bricks. He (the President) had learned to become very cautious as to the selection of local bricks, as they often turned out very deceptive. He should like to hear Mr. New's opinion as to whether mortar should be kept for a length of time; or whether the quantity made up should be restricted to a day's consumption.

Mr. New said he saw no objection to mortar being kept a week or a fortnight, provided it was well raked up for the day's work, and then covered up. With regard to the choice of bricks, he had to observe that good bricks, particularly stocks, were easily known. If they rang when knocked together, they were good. When they were bad, if two were clapped together, one of them would break into halves, and they would not ring. As to the block bricks made in Suffolk, which were of a glazy appearance, and very hard, they were very difficult to be got, and he himself had waited for some in vain.

After a few remarks from Mr. C. H. F. Lewis, Mr. Adams, and other gentlemen, a vote of thanks was passed to Mr. New for his paper.

THE LABOUR QUESTION.

London.—The position of affairs, we fear, is much the same as it was last week as regards any prospect of the unions acceding to the payment by the hour system. Messrs. Lucas are filling up their vacancies; and it is said they can readily obtain additional men from the country; but although, in one case, as we recently reported, building trades' workmen in the provinces not only stood out for new arrangements based on the hour system, but rejoiced in having obtained them; we are given to understand that there is a feeling in the country against this system. The objection, where it exists, is based on misconception.

Wolverhampton.—A meeting of painters, plumbers, and glaziers was held here last week to receive a report of the committee appointed to wait upon the employers to procure a reduction in the hours of labour and an increase of wages. The committee reported that the employers were willing to grant the rise in the summer of from 23s. to 24s., and would also consent to allow men employed on new buildings to leave work at half-past five in the evening as the committee had desired; but they would not agree to any alteration in the time (six o'clock) at which the men left work in houses that were inhabited. The committee had also desired the employers to increase the wages in the winter from 21s. to 22s. a-week, and to make the hours of work from daylight till dark. The masters, however, declined to make any alteration in relation to the winter months. After a discussion the meeting determined to abandon their application respecting the winter season, but it was resolved that the masters should be requested to reconsider their decision, and to consent by that day week to all the men leaving work in the summer months at half-past five.

Chester.—The masons of Chester have turned out. They demand 28s. per week for nine months of the year, and 26s. per week for the three winter months, and to have the breakfast half-hour in summer and winter alike. There is no prospect at present of the masters agreeing to the men's views.

Liverpool.—Though a few of the operative painters have consented to resume work at the old rate of wages, the general body still refuse to accept the masters' terms. At the police court, since the strike began, the magistrate, Mr. Raffles, in consequence of a complaint of espionage and intimidation, stated that, if any operative painter who was disposed and willing to work had cause to complain of any person intimidating him, endeavouring to prevent his working, or interfering with him at his employment in any way, and he came to him (the magistrate), he would at once grant him a warrant for the apprehension of the offender, whom he would punish as severely as the law would allow.

Lancashire.—In the various manufacturing districts of South Lancashire it is estimated that there are now nearly 24,000 operatives unemployed.

Of these the greater portion are away by their own choice, refusing to resume work until their demands are complied with.

HERR SIGISMUND BLUMNER.

MUSIC, like architecture, is perpetually changing, but with strides more rapid. In the one, styles are the growth of generations; in the other, of seasons. Classic and Mediæval in architecture have their counterpart in Classic and Romantic in music; but, in both, what is sterling and excellent will prevail over what is vitiated and ephemeral, and the caprice of fashion, though potent for a time, is powerless to undermine those canons of true art which are the foundation of modern invention, and which form time-marks in the history of progress that time itself shall not obliterate. But whilst architecture had attained a high state of perfection with many of the great nations of antiquity, music remained in primitive simplicity, and it is to modern times alone that we owe the perfection of a science which forms one of the most powerful aids to the advancement of civilization and refinement. As such its well-being would be of itself a matter of sufficient interest to claim our sympathy, did not its alliance with the sister arts demand a record of its progress, side by side with that which forms the main subject of our pages.

A new aspirant for the favour of the London musical public afforded us, on Wednesday last, an opportunity of judging of his qualities as a pianist and composer, at a private *matinée*, at the Hanover-square Rooms.

Herr Sigismund Blumner has forsaken Berlin, where he held the post of a professor at the Conservatorium, to try his fortune in the wider sphere of action presented in London; and if what we heard yesterday may be taken as a fair criterion of his powers, we think his confidence in British patronage will not be misplaced. Herr Blumner is young, energetic, and an ardent lover of his art,—qualifications indispensable to an artist whose reputation in a strange land is yet to be made. Moreover, he is a vigorous and brilliant performer, of what may be termed the New Romantic German School, but evincing those sterling qualities, to be derived alone from the best instruction. He was pupil of the celebrated Charles Mayer, and of Frederick Wieck, the former being the pupil of Field, of St. Petersburg, and the latter the father of Clara Schumann, and studied composition under his brother, Herr Martin Blumner, a director of the Royal Academy of Berlin.

His antecedents, therefore, are thoroughly satisfactory; and, with his own talent and perseverance, we have no doubt of his success.

Herr Blumner's numerous friends had an opportunity, at his *matinée*, of judging of his qualities in four pieces, selected with judgment for their display. Commencing with Beethoven's trio in B-flat major, for piano, clarionet, and violoncello, played in a style that evinced his thorough respect for the classic; he next played a notturno and a mazurka of his own composition,—works of much taste, after the model of Chopin. Then an *allegro de concert*, by Charles Mayer, a work of great beauty,—we presume, out of his first concerto in F minor;—and finally Wagner's march from "Tannhaüser," arranged by Liszt.

His performance was excellent throughout, and the culmination of difficulties in Liszt's arrangement tested his mechanism to the perfect satisfaction of his audience. We hope soon to hear of him again.

PROVINCIAL NEWS.

Norwich.—At the recent meeting of Norfolk county magistrates, Mr. Phipson, the county surveyor, reported that he had made a careful and minute examination of the foundations of the Shirehall, with the view of ascertaining the cause of the settlement that had for some time past been taking place in the building. His mode of procedure was to dig down some few feet below the bottom of the present foundations at those points where the fissures in the walls were largest, and afterwards to bore until the solid substratum was reached. By this means he obtained an exact idea of the nature of the soil upon which the Shirehall stands. He found that the back wall is built on the solid chalk, but that the front wall stands in the centre of the moat, which formerly surrounded the castle. He traced the gradual shelving down of this moat from the back to the centre, and discovered that its greatest depth is 46 feet below the present level; and, as the foundations, including the concrete put in in 1844, are only 8 feet below the surface, there are no less than 38 feet of loose-made soil, composed of mud and rubbish under the footings of the front wall, which is about 7 inches out of the perpendicular from top to bottom, or 1 inch in every 5 feet. At one spot where the staircase is shored up, the filling-in soil was found to be so loose in boring that the augur sank by its own weight nearly 2 feet. To underpin the whole of the walls until the entire Shirehall rests on the chalk would, Mr. Phipson said, entail an enormous outlay—probably several thousand pounds; but although this would undoubtedly be the most effectual remedy, he did not think the building was likely to be in such a state as to render such expensive measures necessary. The concrete put in seventeen years ago was of a very excellent quality, and its footings were spread so wide that no actual damage to the walls need be apprehended; but at the same time it was absolutely necessary to take some steps to secure the weakest points from going further, especially the two walls carrying the central stone staircase. Mr. Phipson recommended, therefore, that these walls should be underpinned down to the solid substratum (13 feet) with large brick piers and inverted arches, to form abutments in those places where the greatest settlements had taken place, and also that four iron ties should be introduced at the upper part of the building from back to front, with the view of checking the tendency of the front walls to go outwards. He believed that the extreme cost of these works would be 300*l.* or 350*l.* All the present cracks should afterwards be stopped up, and the walls and outside woodwork painted, making a total of 400*l.* The Shirehall would then be in such a condition as would render any further outlay upon it unnecessary for several years. It was agreed that the works recommended by the surveyor should be immediately commenced.

Knaresborough.—The want of a public building in Knaresborough has for a long time been greatly felt. Two or three preliminary meetings of persons favourable to the project have recently been held, and there is now some prospect of a new townhall being erected in the Market-place, partly on the site of the present hall, and extending more towards the Courthouse.

Edinburgh.—The important addition to the General Register Office, contracted for about two years ago, is now nearly completed, and partially occupied. From the severity of the weather, the centre or dome portion of the building, consisting of a series of galleries, and wholly constructed of iron framing, is not far advanced, but rapid progress is now being made.

CORN EXCHANGES.

Carlisle.—A committee of the town council here has been investigating and reporting on the question of a corn exchange for Carlisle. They made inquiries in sixty-eight towns, and received answers as to forty-eight corn exchanges, and found that in the majority of instances they pay, and pay well: only one out of fifteen returns as little as 3 per cent. on the outlay; while in the rest the return varies from 4 to 8½ per cent., and the average of the whole is within a small fraction of 5½ per cent. Out of the sixty-eight towns referred to, forty-eight had corn exchanges, and twenty none. Excluding Wakefield and Edinburgh, which cost respectively 15,500*l.* and 18,432*l.*, and Cambridge, Doncaster, Dunbar, Ipswich, Plymouth, Stirling, and Ayr, none of which exceeded 1,800*l.* as the cost of erection, there are fifteen markets in which sums varying from 3,000*l.* to 5,000*l.* have been invested, and seven from 5,000*l.* to 10,000*l.*, as follows:—

	Cost of Construction.	Nett Income.	Rate per Cent.
Berwick	£5,000	£153	3
Chichester	10,000	....	....
Chester	4,000	It pays very well.	
Colchester	4,000	....	....
Dalkeith	4,200	240	5½
Dundee	8,000	....	....
East Dereham*	2,400	222	....
Guildford	4,675	237	5
Hereford	4,500	....	....
Hull	5,300	435	8
Kelso	3,800	190	5
King's Lynn*	2,450	....	....
Louth	6,000	287	4¾
Maidstone	4,000	347	8¾
Melton Mowbray†	3,500	165	4¾
Newark	7,100	330	4¾
Nottingham	5,000	346	7
Peterbro'	5,500	307	5½
Stamford	3,600	252	7
Spalding	5,000	211	4
Warwick	5,500	307	5½
Wisbeach	4,190	174	4¼

* Exclusive of site. † Present value.

Hawick.—A new building is to be erected here for use as a corn exchange, public hall, lecture and concert room, &c. The cost is estimated at 3,500*l.*, to be raised in 5*l.* shares.

Oxford.—The corn exchange committee have reported in favour of the proposal of the corporation to erect a building on being guaranteed a specific rental for its use as a corn exchange. The committee recommended the formation of a limited company, with 500 shares at 5*l.* each, and a call of 5*s.* on each share, as sufficient to effect the object in view. The corn exchange hall will be 100 feet long by 50 feet wide, and the rental, for twenty-one years, is not to exceed 125*l.*, or less, if the building cost less than 2,500*l.* The committee's report has been unanimously approved of at a public meeting of those interested in the corn trade. Four hundred shares have since been applied for.

CHURCH-BUILDING NEWS.

Ipswich.—The new Wesleyan chapel, erected in Museum-street, has been opened for Divine service. The chapel will accommodate from 1,000 to 1,100 persons, including about 200 children. The front in Museum-street is faced with Kentish rag-stone, and ornamental details of Caen stone. The centre is formed by a projecting gable 48 feet high, in which is an arcade of three arches, moulded, leading to the principal entrance and to side staircases to the galleries; and above the arcade is a four-light window filling the gable. On each side are smaller projecting gables to form wings, and which are side entrances to the body of the chapel and the landings of the gallery staircases. The design is taken from examples of the early Geometric style of English Gothic. At the back of the chapel are school premises. The area of the chapel is 86 feet by 50 feet, and of the school-buildings 46 feet square. A house has been erected in the rear for a minister's residence. The whole cost of the work was undertaken by Mr. John Whight for 2,000*l.* from the designs of Mr. Frederick Barnes, architect. The erection of the chapel is mainly due to Mr. W. Pretty, who started the subscription list with 1,000*l.*

Yarmouth.—Some time since, the tower and spire of St. Nicholas's Church was found to be in a precarious condition. Restorations have been going on under the superintendence of Mr. Hakewill, architect; but a few months since the additional aid of Mr. Scott was called in, and these gentlemen have minutely inspected the fabric, and are about to report on the same. As to the tower, however, no time was to be lost. Mr. Scott, according to the Rev. Mr. Nevill in a statement made at an Easter meeting, found, on examination, that the tower was in a very dangerous state,—much more dangerous, indeed, than they had had any idea of. He at once requested that some of the plaster might be removed; and, this having been accomplished, a crack was discovered in one of the angles, extending upwards about 30 feet. A part of the tower, which had formerly been cut out, and the masonry removed, had never been replaced. The architects, therefore, directed that the necessary precautions should be taken for mere safety, and that the mortar and plaster should be removed from the rest of the tower. In doing this the workmen came to a crack worse than the first. The churchwardens saw the necessity of prompt exertion, and the result was that he (Mr. Nevill) believed that the tower was now in a firmer and more satisfactory state than it had been, perhaps, for the past one hundred years or more. It was also found, in the examination of the tower, that part of the wall was defective: it was bulged, and there was a serious crack. It would be a question whether, for mere safety's sake, one of the pinnacles would not have to come down; and next year they would probably have to remove the roof of the south aisle, which was now in a very defective state.

Sandown (Ryde).—The tender of Messrs. Dashwood & Son, of Ryde, was the lowest of those sent in for the enlargement of the church at Sandown, but the amount is said so far to exceed that contemplated, that fresh tenders are to be called for.

Winchester.—The dean and chapter have decided on completing the restoration of the west front of the cathedral, and Mr. Newman has contracted to do the same for 964*l.*, under the superintendence of Mr. Colson, the architect. This contract will complete the work down to the level of the pavement of the nave, and will include the two niches; but these, according to the *Hampshire Advertiser*, are to be untenanted for the present. One improvement which will now be effected will be the removal of the clumsy wooden frames and iron-work which hide the foliations of the heads of the lights of the large window.

Newcastle-under-Lyne.—The new Wesleyan

chapel has been opened. The style is Gothic, with Continental features. The material is red brick, with blue brick introduced into the arches and strings, with stone tracery. The principal entrance is at the north end, by two doors, one on either side, leading through folding doors into the lobbies, in the centre of which are the stairs, ascending to the galleries. The interior is divided into nave and aisles, with iron clustered columns, painted dark blue, and arches of coloured bricks: the roof is of open timber. The clerestory is carried by arches of blue and red bricks, supported by the cast-iron columns necessary for the gallery, and continued upwards above the same to such a height as that the capitals and arches upon them will not interfere with the view. The clerestory is lighted by ten quatrefoil windows on each side. The central ceiling is 49 feet from the floor-line. There are galleries at the sides and at the north end, and at the south end a gallery for an organ and the choir. All the woodwork is stained and varnished. The dimensions of the chapel are 88 feet by 50 feet, and it is calculated to seat 1,000 persons. The amount of the contract was 2,400*l.*; but there are extras. The architect is Mr. H. Fuller, of Manchester; and the contractor, Mr. E. Matthews, of Hanley.

THE NEW TOWN-HALL, HALIFAX.

LAYING THE CHIEF STONE.

ON Tuesday, the 2nd inst., the chief stone of the new town-hall at Halifax was laid by the mayor, at the base of the "Victoria Tower" of the projected edifice.

In the *Halifax Courier*, a full account of the ceremonial is given; and, in a supplement, illustrated with the engraving of the building which appeared in the *Builder*, is an architectural description of it, partly from our columns, and partly from the pen of Mr. Leslie, the superintendent of the works. Mr. Leslie states that in the construction of the building there will be required about 24,000 tons of stone, brick, and slate, upwards of 100 tons of iron, and 150 tons of other material. The works commenced in March, 1860; and proceeded, with occasional interruptions, through the dissatisfaction of the men, until August; when the general strike took place, and brought the works to a complete standstill for many months. The dispute, however, having terminated by mutual arrangement, it is hoped nothing further will intervene to prevent the present activity being continued, in which case the building may be ready for occupation in about twenty months. Meantime what has been done is now well settled and solidified.

The tower, which is situated at the south-west angle of the building, and directly facing Princess-street, is 36 feet square at the base, and rises to a height of 160 feet from the level of the street. In the lower part a niche will be formed, to receive a statue of the Queen.

The hall, though not intended to be used as a concert-room, like those in many of the large provincial towns, is still an important part of the building, the dimensions being 51 feet 6 inches long, 41 feet 6 inches wide, and 42 feet high. There will be a gallery all round, giving access to the various rooms and offices which open on to it. The hall will be lighted from the top, through ornamental glass, constructed to form the cove of the ceiling, the centre part of which will be divided into panels and moulded.

Adjoining the hall is the borough court, 41 feet 6 inches long, 33 feet wide, and 39 feet high, in which every accommodation will be provided for the bench, the public, and the general attendants of courts of justice. A stone staircase communicates direct from the dock to the cells below and the police department. The mode of lighting and the general construction of the ceiling are similar to that of the hall.

The whole of the floors and the roof are formed of wrought-iron girders and joists, with arches turned in cement between each joist, rendering each floor fireproof. The warming of cells, staircases, and all other portions of the building not provided with fireplaces, will be effected by means of hot-water pipes. The ventilation will be in all parts, where practicable, regulated by windows, air flues, or other artificial means, being only adopted in such places where the former mode cannot be made effectual.

The architect, as we have before stated, was the late Sir Charles Barry, R.A., whose last labour was this design. His son, Mr. Edward Barry, is carrying out the work. The superintendent of the works is Mr. John Leslie. The contractors are,—for the masonry and brickwork, Messrs. Whiteley, Brothers, Leeds; joinery, carpentry, and ironmongery, Mr. Joseph Bedforth, Halifax; slating and plastering, Mr. Alfred Bancroft, Halifax; plumbing and glazing, Mr. George Walsh, Halifax; ironfounders' and smiths' work, Mr. Henry Grissell, London; painting, Mr. James Farrar, King's Cross.

APPOINTMENT OF ASSESSOR, ST. GEORGE'S, HANOVER SQUARE.

AT the meeting of the Vestry, on the 4th inst., Mr. Englefield proposed the following motion:—"That the appointment of assessor to the parish, in the room of the late Mr. Jearrad, be made by this Vestry, at their meeting on the first Thursday in April;" and, in doing so, said that he could not let the opportunity pass without expressing his regret at the loss which the Vestry and the parish had sustained by the death of the late Mr. Jearrad.

This having been seconded, Mr. Westerton did not consider it fair, either to the Vestry or the parish, that the election should take place without advertisements appearing in the public papers; and should therefore move, as an amendment, that the appointment be delayed until the vacancy shall have been made public by advertisements in the newspapers.

Dr. Appleton seconded.

The amendment was put and lost by 26 against 30. The original motion was carried by a majority of 26 to 18.

The Vestry then proceeded, on the motion of Mr. Hall, seconded by Mr. Dunkley, to take the election by ballot, which resulted as follows:—Mr. Sydney Howell, Pimlico, 22; Mr. Lee, Golden-square, 19; Mr. Turner, Wilton-street, 13; Mr. Harris, Charles-street, Berkeley-square, 2. Mr. Howell was therefore elected as assessor, in the room of the late Mr. Jearrad, and on the same terms.

MASTER AND WORKMEN.

MR. W. WEBSTER, the contractor, was presented with a testimonial, on Monday evening, at the Ship Hotel, Woolwich, by the workmen employed by him on the works of the Metropolitan Southern Outfall Main Sewer (about three hundred of whom were present), in appreciation of his kindness to them during the last severe winter. The testimonial consisted of a handsome silver cup, valued at thirty guineas.

Mr. Webster, in acknowledgment, said he had done no more than his duty, and no more than he should on any similar occasion be ready to do again. The good feeling which existed between his workmen and himself had, happily, hitherto kept them free from the evils of the strike, which he regretted to see was again threatening to involve masters and men in a ruinous contention. Should the dreaded crisis come, he would ask his men to continue their good feeling towards him, and abide the issue; and he could assure them that they would have no cause to regret it, for he would not be last nor half-way down the list of masters to agree to any fair arrangement which might be made. For his own part he would say with confidence, that he had never paid less than a day's wages for a day's work to any man, either in winter or summer; and if ever the time came when he could not do so, he would discontinue to take work. He thanked them heartily for their gift, which, however, he should equally have prized if it had cost one-twentieth as much; and he hoped that, in accepting it, he had distressed no man's pocket nor robbed any child of a breakfast.

THE DATE OF AVIGNON CATHEDRAL.

IF all who attempt to write the history of architecture were to bring to the task the same spirit of careful investigation, the same desire accurately to note and faithfully to record, and the same amount of technical knowledge, as distinguish Mr. Waring's paper on the Church Architecture of the South of France, and his communication to you of last week; such crude theories and rash conclusions as characterize the Chapter on the Architecture of Provence in Mr. Fergusson's "Handbook of Architecture" would never see the light. I write this unwillingly; for, in the first place, I have no desire to take part in the discussion which has arisen between these two gentlemen, nor, in the second place, do I wish to run the risk of appearing, unintentionally, to say anything personally unpleasing to Mr. Fergusson. But agreeing, as I do, with Mr. Waring, that, to assert that the cathedral of Avignon belongs to the eighth or ninth century, is to antedate the design of that building by two centuries, and thereby to displace an important link in the chain of evidence which conveys to us the history of the progress of a great art, I cannot, as one who has many years ago carefully studied the architecture of the South of France, and takes a deep interest in the subject, refrain from entering my protest against this attempt, and from recording my entire adherence to Mr. Waring's views as to the real date of the building in question, and the *palimsest* character of its western porch.

Nothing in the entire history of architecture is more remarkable than the spirit of Renaissance with which the Mediæval architects of the south of France appear, at one time, to have been inspired. This rage of imitation appears to have reached its height towards the middle and close of the twelfth century. Nevertheless, singular as is the first sight, to a student of Northern architecture, of a doorway, every order of whose archivolt is composed of Classical mouldings, resting on attenuated Composite capitals, and light *banded* shafts; it is not, perhaps, after all, wonderful that surrounded as we know them to have been with numerous buildings of the late Roman period, of great elegance and high finish, these builders should, at a time when a certain indecision of style characterised the architecture of the whole of Europe, have contrasted these elegant details, with the cumbrous ornamentation of their Northern neighbours, and contemplated a possible recurrence to that ancient style of building which, five centuries later, became again the current architecture of the day.

Whether it is the fact of the occurrence of these Classical appearances in the main features of the churches of the south of France, or the casual insertion in their walls of fragments of earlier work, or the occasional occurrence of an ovolo moulding on the soffit of a pointed arch, or the slight personal examination that he has been enabled to give to these buildings, which has misled Mr. Fergusson in attributing so high an antiquity to this latter feature, and so far mistaking the real character and date of Avignon cathedral, I cannot say; but I feel certain that if he had studied these buildings with the care and attention that Mr. Waring has evidently bestowed upon them, or if he possessed the amount of internal and external evidence which I happen to have on the subject, he would not have ventured on so rash an assertion, as that the Pointed Arch was used in France in the eighth and ninth centuries, and that Avignon Cathedral belongs to that period.

EDMUND SHARPE.

FEMALE ARCHITECTS.

Now that sculptors, engineers, painters, &c., are openly assuming the title of architect, without any of the acquirements usually considered hitherto as necessary, it will be no matter of surprise should we hear some day of a lady architect; for undoubtedly there is much that can be well done in an office (and in fact *is done*, in one instance, at least) by females. Drawing, writing, and colouring, are as easy for one sex as for the other. Superintendence of the works can be delegated. If an example be wanted, reference may be made to the daughter of Sir Christopher Wren, who, in your journal for last year (p. 685), is asserted to have been "a skilful architect;" and in Vol. X., p. 690, that she "has the credit of having designed several of the City churches." How has this oft-quoted remark arisen? In Elmes's "Life of Wren," she is only mentioned (p. 385) as Jane Wren, who died in 1703, aged 26! with her epitaph, copied from the tablet in the crypt of St. Paul's Cathedral. Is this another instance of "nothing being true?"

F. A.

TO UNITE STONE AND GLASS.

M. BRU, curator of the museum at Narbonne, has discovered that silicate of potash possesses, in the highest degree, the property of uniting surfaces of stone, glass, and pottery.

It is applied with a brush to the surfaces which it is desired to bring into contact, and in a few days acquires a great solidity.

It appears that the same material can also be successfully used in joinery, and for all the purposes to which common glue is applied.

This discovery, which promises to be of considerable importance, was announced by M. Bru to M. Figuier, the editor of *L'Année Scientifique et Industrielle*, the volume of which work for the present year contains, at p. 481, a paper on the subject, and a letter from M. Bru to the editor.

SELIM.

THE OLD HOUSE IN THE CITY.

An old house with a flight of steps,
And towering gables shining red
Beneath the smile of arching trees,
Whence crafty rooks are born and bred:
Full of quaint cornices of oak,
Flooring and rafters of the same,
Old worm-gnaw'd substance ably framed,
With antique carvings like to life,
Such work as builder never shamed.

Not so the houses of to-day,
The flimsy fabrics of an hour;
Where season'd timber ne'er was put,
Unstanchion'd with huge limbs of power.
For all the banisters and rails
Are twisted with the guile of art:
No wonder that the mansion stands
The glory of the city heart.

For all the rooms are liberal
In what a courtly home should be;
Not cabin'd into coffin'd cribs,
The tombs for new posterity.
We boast our progress, yet we see
Foul retrogression in the plan,
Because the old house yet remains
The fittest for the "working man."

For it would seem the grudging minds
That plot and build, and strive to kill
With cheerless rooms and ceiling low,
Are licensed but to murder still;
As if it were a sin to breathe
God's blue life-giving atmosphere.
So, looking at new city dens,
I'll prize this old house, never fear.

ALEXANDER HAY.

KING'S COLLEGE CHAPEL, CAMBRIDGE.

My Dear Mr. Editor,—The Cambridge M.A. evidently wants me to enter into a discussion. Now my business at present in this world is to build, and not to argue. I do not see what good such discussions produce. I certainly never heard of any one changing his opinion in consequence of their perusal, and we have very ancient authority that, *de gustibus non est disputandum*.

I can, however, suggest how "M.A." may possibly arrive at the same result as myself. Next long vacation let him go to Paris for a fortnight, and there spend every morning in studying the Sainte Chapelle, and every afternoon in the same occupation before the west front of Notre Dame. He may then come home with the recollection of these two buildings fresh in his mind, and look at King's College Chapel, Cambridge. Perhaps he will then understand why I do not admire the latter edifice.

If, however, he object to the discomfort of crossing the Channel, or should his long vacation be pre-occupied, I shall be most happy to endeavour to convert him at Cambridge itself, by rebuilding his college chapel, or indeed the chapel of any other college at Cambridge, for there are several which are in great want of it.

W. Burges.

P.S. As to the just matter at issue between "M. A." and myself, viz., the misereres and the Pagan angels, I must refer him to my friend Mr. Seddon's lecture "On the Grotesque."

THE MAIN DRAINAGE WORKS.

METROPOLITAN BOARD OF WORKS.

At the last meeting of the Board, the engineer presented a report on the progress of the main drainage works, which stated that the northern High-Level sewer had progressed more satisfactorily during the past month; and, should no unforeseen delay arise, it would be completed before the next monthly report. The value of the work executed during March was about 4,750*l*. On the northern Outfall sewer, works to the value of about 11,000*l*. had been executed, the ground having been excavated for the reception of the concrete for a length of about 3½ miles, and a tramway laid for about 2½ miles. A wharf had been constructed near to Barking-creek for the delivery of materials, and steam-engines and machinery had been erected for the mixing of concrete upon a large scale. The total value of the work done upon the Middle-Level sewer contract is about 13,000*l*.; but much time had been occupied in removing defective work, pumping out water which had accumulated during the time the works were stopped, and in completing sections left in an unfinished state by the late contractor. In the Ranelagh storm overflow about 1,570 feet of sewer, 8 feet 6 inches in diameter, have been constructed by open cutting, and about 750 feet in tunnel; the value of the work done being about 8,600*l*. The southern Outfall sewer contract progressed rapidly, works to the value of about 127,000*l*. having been completed; viz., 9,947 feet of sewer in open cutting, and 4,175 feet of tunnel under Woolwich. On the southern High-Level sewer the length of works completed is about 22,000 feet, and its value is about 72,000*l*. The Low-Level sewer under the Surrey Consumers' Gas Company's premises had been completed, and the Earl Outlet works were nearly finished. The machinery for the engines at Deptford pumping station is in a forward state, and the tenders for the engine-house would be received at the meeting of the Board on the 12th instant.

Removal of the Courts of Law.—The Attorney-General gave notice that on Thursday, the 18th instant, he should move for leave to bring in a Bill providing for the concentration in one place of all the superior courts of law and equity, Admiralty, Probate and Divorce, and Bankruptcy, with all the offices connected therewith; also for the application of certain funds in the Court of Chancery to the above purposes.

Books Received.

Workmen's Earnings, Strikes, and Savings. By Samuel Smiles. London: Murray, Albemarle-street. 1861.

This little volume of Murray's "Railway Reading" is a reprint, from the *Quarterly Review*, of an article by the now well-known author of a "Life of George Stephenson," and "Self Help." It is written with Mr. Smiles's usual ability, but displays rather an extreme opinion against strikes, which in some cases may really be said to be the workman's only resource, and to be hence unavoidable. This, however, has by no means been the case with the nine-hours movement strikes, and it is to be wished that such a forcible exposition of the general evils of strikes as this of Mr. Smiles, now that it is attainable in a cheaper form than before, could be put into the hands of many conscientious but wrong-headed agitators of these unhappy movements. The article, as will be seen from the title, treats of other important subjects, of interest to the working classes, besides strikes; and it is altogether one of some importance to the class of whose history, interests, and prospects it so ably treats.

VARIORUM.

"The Alphabetical Gazette; a permanent Register of Bankrupts, Insolvents, Assignments, Sequestrations, Dividends, Certificates, Partnership Dissolutions, Notable Suspensions, &c. First Quarterly Part, 1861. London: Adams, 59, Fleet-street." The nature of this sixpenny "quarterly" is precisely indicated by its title: it must be of great and continual utility in trade transactions, and ought therefore to be in the hands of all engaged in commerce. But, nevertheless, it is a production capable of doing much damage to unfortunate but honest tradesmen and others, who are here classed together, without the slightest distinction, in "black lists," with all sorts of dishonest and swindling bankrupts and insolvents. The division on "assignments" especially, perhaps, might well have been spared, after the exposure which recently took place as to the mischief to perfectly solvent tradesmen and others whose temporary needs induce them to assign goods, furniture, &c., to others, in security of loans in business, or other pecuniary straits: it has been found that, immediately this is done, the assigner appears on such black lists as this, and is in the hands and at the mercy of all with whom he deals and who may have a balance against him; a run upon him forthwith taking place which but too often precipitates him into hopeless insolvency or bankruptcy. In other respects, as we have said, this "black book" must be extremely useful in trade transactions. ——"The North Atlantic Telegraph; *viâ* the Færöe Isles, Iceland, and Greenland. London: Stanford, 6, Charing-cross, 1861." The researches of the recent expedition to find out an available route for the projected North Atlantic Telegraph are here given in detail from the Proceedings of the Geographical Society, the Reports of the surveying expedition, &c. The question of landing-places is one of especial interest, from the necessity of guarding against the destroying influence of floating icebergs in shallow seas along shore lines. This question, it will be known to most of our readers, is considered to be settled, by the surveying expeditions, in favour of the perfect practicability of carrying a submarine line of telegraph round by Iceland, Greenland, and Labrador, to the more habitable southern regions of North America. The project, nevertheless, appears to be one of as perilous a nature as that of the more southern route; and it is questionable whether the real difficulty lies in the precise line of route so much as in the line of telegraph itself, as hitherto constructed.—— "The Facts and Fallacies of the Turkish Bath Question. By E. Haughton, M.D. Lee & Nightingale, Swift's-court, Castle-street, Liverpool, 1860." In this pamphlet Dr. Haughton enters pretty fully into the question of the merits and the kinds of oriental baths. His chief object, however, is to show the differences which exist between genuine oriental baths and those which have been recently built in various localities under the name of "Improved Turkish Baths." The author is of opinion that "wherever a Turkish bath fails to produce its proper salutary effects, it must be because some wise man (not of the East) has been guilty of an improvement in it." *Suspend* the "improvements" is the corrollary. "A real Turkish bath" he thinks "is not such a bad thing after all; and, although hitherto *rejected by the builders*, shall yet become the 'head of the corner.'" He himself does not class us with these builders, but by some it seems to be forgotten that we were probably the first of late years to bring the subject under public notice. In 1857 (p. 615, vol. xv. *Builder*) a special article on the "Construction and Use of the Turkish Bath" appeared in our columns.

Miscellanea.

South Kensington Museum.—During Easter week 24,919 persons visited the Museum.

Theatre at Malta.—Mr. E. M. Barry has been lately in Malta, making arrangements for the erection of a theatre there from his designs. The amount to be expended is comparatively small.

Railway Returns.—The traffic returns of railways in the United Kingdom, for the week ending March 23rd, amounted to 487,280*l*., and, for the corresponding week of last year, 465,180*l*., showing an increase of 22,100*l*. The gross receipts of the eight railways having their termini in the metropolis amounted to 212,932*l*., and for the corresponding week of 1860 to 202,814*l*., showing an increase of 10,118*l*.

A Chapel for Wellington College.—Upwards of 1,600*l*. have been subscribed towards building a chapel for the Wellington College, and to increase the college so as to provide accommodation for an additional number of boys. Mr. Scott, to whom the work has been committed, has estimated the cost at 5,500*l*., towards which the governors will contribute 2,500*l*. Her Majesty, the Prince Consort, and the Prince of Wales are among the contributors to the fund.

The Proposed Building for the Nottingham School of Art.—The design of Mr. Simpson for a School of Art building for Nottingham having been adversely criticised by Mr. Redgrave and Captain Fowke, who have declared it to be both unsuitable and costly, the committee have considered themselves justified in inviting a further competition. Mr. Simpson complains that the reports of Mr. Redgrave and Captain Fowke have not been officially communicated to him, while the local Inclosure Committee, who at present hold the site, consider that the designs should not have been superseded without consulting them.

The London Coal Duties Bill. — The second reading of this bill, the main object of which is to continue for ten years the 8d. and 1d. duties, now about to lapse, with the view of paying with these the whole or part of the cost of the Thames Embankment, was moved in the Commons, on the 8th instant, by Sir G. C. Lewis, the Home Secretary. In the course of the discussion which ensued, the Lord Mayor, on an amendment for the adjournment of the debate for six weeks being moved by Mr. Roupell, deprecated the sacrifice of a tax to which the public were so accustomed, and which fell very lightly on the community; and Mr. Tite asked where the 2,000,000*l*. were to be found for the Thames Embankment if the coal-tax were refused. The numbers for the second reading were 119, and for the amendment 10,—majority 100 in favour of the bill, which was therefore read a second time. We may now hope that the Thames Embankment will be set about in earnest.

Kensington-gardens.—Our readers are no doubt acquainted by sight with the high brick wall which formed the boundary of the park at the south-western corner, just before entering the old town of Kensington. During the last few weeks we have observed the gradual demolition of this wall for about half its length up to the alcove. It is intended to place iron railings along the boundary instead. The old wall has been an eyesore for many years;—12 or 14 feet high, without a vestige of ornament or finish, completely shutting out the view of the park, and rendering the inner margin cold and damp. It is only to be regretted that the improvement has stopped short half way, and left many rods of the wall still standing on the west of the alcove. A sound reason for this cannot quickly be detected: possibly there was the idea of retaining a screen to Kensington Palace, but as that stands a long way back, with a forest of trees between, and as two paths with great traffic already run much nearer than the main road, great weight cannot be attached to that idea. However, we should be thankful for what we get; and, acting on this principle, the vestry of Kensington has recently passed a motion of thanks to the Hon. W. Cowper, M.P., Chief Commissioner of Works, for the alteration; which certainly, as far as it extends, is a decided improvement to the neighbourhood.

PICTURE BY VERBŒCKHOVEN.—A fine picture of "Cattle leaving a Farmyard," by Verbœckhoven, is now on view at No. 3, Hanover-square. It is of large size, and includes sheep, horses, and cows, painted in the master's best style.

INSTITUTION OF ENGINEERS IN SCOTLAND.—At a special general meeting of members a paper was read on "Underground Mineral Transit," by Mr. James Ferguson. A discussion ensued. The institution then adjourned, to meet in a fortnight for the further discussion of "Surface Condensers."

ST. MATTHIAS'S CHURCH, RICHMOND-HILL, SURREY.—The tower for the above church, from designs by Mr. Scott, is now about to be completed. The contractor for the same is Mr. James Long. The tender is divided into two parts, the

Contract for the tower being.....	£2,104
" spire.....	995
	£3,099

The total height from the ground is about 190 feet, and it will form an important feature for many miles round the country.

THE PHOTOGRAPHIC SOCIETY.—On Thursday evening, the 4th inst., the President and Council of the Photographic Society of London had a reception at King's College, which was largely attended. Along the walls, and on tables stretching the length of the great hall, were ranged between 600 and 700 specimens of photographic art, produced by the various processes. There were mostly known, having been recently exhibited at the gallery in Pall-mall, but are not the less beautiful. On the dais some sculpture by Mr. Joseph Durham, especially a child nursing a dog, under the title "Go to Sleep," excited universal admiration.

LARGE STEAM-HAMMER.—Messrs. Bain & Wyne, engineers, Glasgow, have just finished a large steam-hammer on the "moving cylinder" principle of the late Mr. Condie. It is to be erected in one of the iron-works near Birmingham. The framing consists of two square cast-iron columns, having a clear working space of 16 feet between them, and bound together by a massive horizontal cast-iron beam. These two columns are surmounted by a pair of segmental frame pillars, which, conjoined, form a complete semi-circular arch, springing up to a height of 23 feet from the floor line. The hammer cylinder is cast of the strongest cold blast-iron, and weighs upwards of five tons, with a fall or stroke of 6 feet. The valves are wrought by means of a small horizontal steam-cylinder, to which they are connected; and the attendant has merely to touch gently the slide valve of this miniature engine to put the enormous weight in motion. This hammer, with its anvil block and sole-plate, weighs about eighty tons.

BURSTING OF A RESERVOIR AT ST. HELEN'S.—On Thursday in last week, the large reservoir, lately formed by the Ravenhead Plate-glass Company, on the north side of their works, and which contained a great quantity of water used for the purposes of the works, burst on the east side, fronting the road leading from the canal to Ravenhead; and in a few minutes made a breach several yards wide; when the immense body of water rushed down the fields, sweeping all before it. Considerable damage was done, more especially to the patent alkali works, which lay directly in its course to the canal. Some of the workmen stated that the water entered the chemical chambers, and several hundred pounds worth of blue vitriol was washed away. Casks, planks, stones, and rubbish were all swept into the canal, the sides of which, being composed of loose materials, were ploughed up, furrowed, and carried with the water into the canal, completely embedding some flats that were stationed there. The fields over which the water passed were also ploughed up and covered with stones carried from the reservoir. The embankments of the reservoir, which were very extensive, appeared to be formed principally of sand—a material not at all suited to confine a great weight of water. Fortunately there was no loss of life, the workmen engaged about it having left work some short time previously.

FORKS AND SPOONS.—The intrinsic value of silver being very great, and the duty paid upon all articles manufactured of it, whether for domestic or ornamental purposes, heavy, a cheap substitute for it, of good appearance, is constantly being sought. With this idea, numerous so-called inventions have, from time to time, been brought before the public under a great variety of names, but have failed under the test of wear. We have recently received from Mr. Benson, of Cornhill, specimens of a material used by him, under the title of argentine, which, under a short trial, has certainly improved rather than fallen off in appearance. The effect of time upon it we must wait for time to tell.

DRINKING-FOUNTAIN MOVEMENT.—The time has arrived for the revival of this movement after the lapse of winter. At Spalding a fountain is to be erected by subscription as a memorial of a townsman. The design, by Mr. Wm. Brown, of Spalding, architect, consists of an Ionic portico of four columns upon a base, the whole structure being about 17 feet in height, with a fountain in the centre flowing into three vases and trough below.——At Derby a fountain is to be erected on one side of the Corn Exchange in honour of the mayor and high sheriff of the city. Mr. Wilson, architect, has produced a design. The cost will be about 120*l*.

GAS.—The Stamford Gas Company have reduced the price of their gas from 5s. 6d. to 5s. per 1,000 cubic feet.——At Wolverhampton, the price of gas has been reduced 10 per cent., or to 3s. 9d. "This," remarks the local *Chronicle*, "is the fourth reduction during the last five years, and no doubt a large increase in the consumption will follow."——The Dewsbury and Batley Gas Company have declared a dividend of 10 per cent., and carried a good surplus forward out of the profits of the year (2,760*l*.). The surplus already in hand was 3,755*l*. An extension of the works to Thornhill is under consideration.——New gas works have been completed for the Londonderry Gas Company, at the water side, from plans by Mr. H. Ridley, their manager. The contractor was Mr. Denis Dogherty.——There appears to have been a very rapid increase of late years in the consumption of gas in Paris. At the general annual meeting last week of the "Compagnie Parisienne d'Eclairage et de Chauffage par le Gaz," the report presented stated that the consumption had been, in 1855, 33,000,000 cubic metres; in 1857, 52,261,000 cubic metres; in 1859, 63,015,000 cubic metres; and in 1860, 70,348,600 cubic metres. The profits of the company in 1860 were 332,200*l*., and the dividends paid during the year were 70f. per share, as compared with 60f. per share in 1859.

TENDERS

For restoration of Layham Church, Suffolk. Mr. G. E. Pritchett, architect:—

Ringham	£1,110 7 1
Welham	819 0 6
Spooner & Cook	809 0 6
Hawkins (accepted)	701 7 4

For additions to mansion, Overstone-park, Northamptonshire, for the Right Hon. Lord Overstone. Mr. W. Milford Teulon, architect. Quantities supplied by Mr. C. Balam:—

Kelk	£34,357 0 0
Ruddle & Thompson	32,800 0 0
Lucas	31,065 0 0
Cubitt	28,978 0 0
Broadbent (accepted)	27,429 0 0

For a pair of semi-detached villas, with fencing, for Mr. E. Steel, Buckhurst-hill, Essex. Mr. J. H. Rowley, architect:—

Case	£935 0 0
Sewell	931 0 0
Rivett	923 0 0
Brake	877 0 0
Pursey	799 0 0
Salmon	760 0 0

For the erection of a farm-house on the Wimpole Estate, for the Right Hon. the Earl of Hardwicke. The clerk of the works on the estate, Mr. Eraut, architect:—

Gimson	£1,025 0 0
Bell & Son	947 0 0
Thoday & Clayton (too late) ..	893 0 0

For erection of a villa at Surbiton, Surrey, for Mr. Thomas Lambert. Mr. G. Elkington, architect:—

Rider	£4,380 0 0
Mason	4,280 0 0
Clemence	4,199 0 0
Wells	4,137 0 0
Willson	3,975 0 0
Browne & Robinson (accepted)	3,858 0 0

For engine-house, chimney, engine-beds, and other works for Messrs. Ellershaw & Sons, Sculcoates, Hull. Mr. W. Botterill, architect. Quantities not supplied:—

For Brickwork.

Jackson	£676 9 4

For Stonework.

Eeles	£375 10 0

For Carpenter's and Joiner's Work.

Stephenson & Clark	£78 12 9

For Plumber's and Glazier's Work.

Harrison	£27 0 0

For Slater's Work.

Newmarch	£18 15 0

For Entire Works.

Woolley & Son (accepted)	£1,176 0 0

For restoring two houses at Tottenham, destroyed by fire. Mr. Campbell, architect:—

Williams	£419 0 0
Chapman	389 0 0
Aspland	365 0 0
Wood	355 0 0
Harradine (accepted)	332 0 0

For factory chimney at Hoxton:—

Foster	£96 0 0
Woodward (accepted)	88 0 0

For villa residence, at Burton-upon-Stather, Lincolnshire, for Mrs. E. Waterland. Mr. W. Botterill, Hull, architect. Quantities not supplied:—

For Excavator's, Bricklayer's, and Plasterer's Work.

Lumley & Son	£323 10 0

For Mason's Work.

Eeles	£81 10 0
Boards	71 17 0

For Carpenter's and Joiner's Work.

Jackson	£324 0 0
Stanewell	269 0 0
Stamp	262 9 0
Stubbins	259 0 0

For Plumber's and Glazier's Work.

Smith (accepted)	£51 0 0

For Slater's Work.

Dawber & Son	£49 10 0
Newmarch	37 0 0
Wilde & Son	33 0 0

For Painter's Work.

Godson	£18 0 0

For Entire Works, except Plumber's and Glazier's.

Lumley & Son (accepted)	£663 7 0

For Wesleyan schools and master's residence, Blackburn, Lancashire. Mr. W. Botterill, Hull, architect. Quantities not supplied:—

For Entire Works.

Bell	£1,855 0 0
Dent & Marshall (accepted)	1,792 13 0

For Bricklayer's Work.

Hilton	£537 0 0
Bell	450 0 0

For Mason's Work.

A. & J. Spence	£559 0 0
Dent & Parker	530 0 0
Blackburn	500 0 0
Arkwright	470 0 0
Sellers	452 0 0

For Carpenter's and Joiner's Work.

Whalley	£592 0 0
G. Baron	585 0 0
W. Baron	540 0 0
Bell	530 0 0
Wolstenholme	525 0 0
Dent & Marshall	490 0 0

For Plumber's and Glazier's Work.

Bell	£120 5 0
Woolfall	99 10 0
Walsh	85 0 0
Shaw	85 10 0

For Slater's Work.

Forrest	£129 5 0

For Painter's Work.

Entwisle	£45 0 0
Bell	31 19 0

For estimates for building new stables for Mr. Nye, at Brighton:—

Wisden & Anscomb	£2,030 0 0
Lynn	1,980 0 0
W. A. & B. Field	1,969 0 0
Fabian	1,669 0 0
Cheesman & Co. (accepted)	1,853 0 0

For farm-houses, offices, &c., at Houghton-le-Spring, for the Hon. and Rev. John Grey. Mr. John E. Watson, architect, Newcastle-on-Tyne. Quantities supplied:—

For the whole Work.

Fairclough & Sons	£4,056 8 4
Lowes	3,805 17 9
Harrison	2,950 19 10
Peart & Humble	2,942 16 2

A number of tenders were given for separate works, but for these we have not room.

For restoration of Sutton Baptist Church, Northamptonshire. Mr. H. Goddard, architect, Leicester. Quantities supplied:—

Broadbent	£415 0 0
Burditt	347 0 0
Stanyon (accepted)	329 0 0

For schools, Irthlingborough, in the county of Northampton. Mr. Joseph Peacock, architect:—

Watkins	£1,770 0 0
Whitney	1,748 0 0
Simpson	1,560 0 0
Rooksby	1,159 0 0
Allen	1,077 0 0

For German Evangelical Church, Halton-street, Lower-road, Islington, "after enlargement and alteration of original design." Mr. T. W. Constantine, architect. Quantities not supplied:—

Fowler	£3,199 0 0
Downs	2,250 0 0
Dove, Brothers	2,135 0 0
Sargeant	1,676 0 0

For chapel at West-green, Tottenham, to hold 350 persons. Mr. Campbell, architect:—

Myers	£1,184 0 0
Rider	1,120 0 0
Humphreys	989 0 0
Clarke	889 0 0
Williams (accepted)	885 0 0

For rebuilding No. 5, Maddox-street, Regent-street. Mr. C. Eales, architect:—

Howard	£1,500 0 0
Aney & Bellingham	1,379 0 0
I'Anson	1,324 0 0
Clemence	1,311 0 0
Lawrence & Sons	1,270 0 0
Batterbury	1,230 0 0
Saunders	1,228 0 0
Hallett	1,200 0 0
Brown	1,143 0 0